

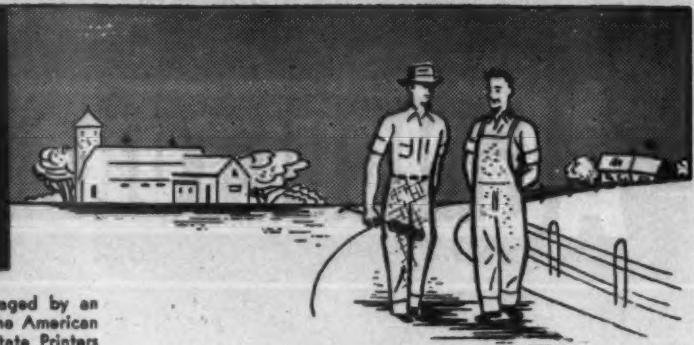
The AGRICULTURAL EDUCATION
Magazine



The Agricultural Education Magazine

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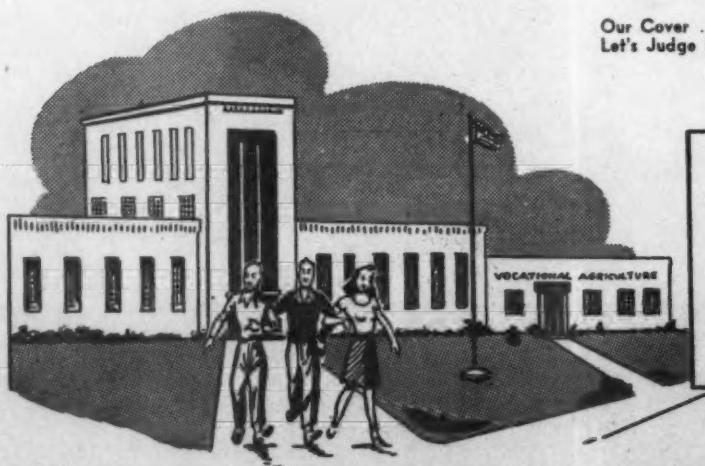
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Contents

Editorials

Dated But Not Outdated.....	171
Teach for Tomorrow..... David R. Archer.....	171
Today's Research Shapes Tomorrow's Farming..... Byron T. Shaw.....	172
Using the Group Project.....	
Elwyn Miller.....	174
Community Farms as the Laboratory..... John Griffith.....	175
What Teaching Material to Use?..... D. A. Dunning.....	175
Securing Instruction on Field Trips..... Stanley Wall.....	176
Prune Curriculum	
Roland L. Essman.....	177
In-Service Training	
J. C. Atherton.....	178
Focusing on New Sights..... C. S. Anderson.....	180
Young Farmer Education..... R. W. Canada.....	182
Farming Programs Which Lead to Establishment..... Henry L. Polis.....	183
Does It Pay?..... E. O. Bolender.....	184
Rugged Individualism Again..... Carl G. Howard.....	185
Quick Returns from In-Service Training..... T. J. Horne.....	186
Insurance for Electric Power..... Edward O. Eaton.....	188
Chart Making Techniques and Materials..... R. J. Woodin.....	189
Book Reviews	
A. P. Davidson.....	190
Rural Electrification	
E. W. Foss.....	191
Our Cover	
Let's Judge Soil..... Guy A. Stockdale.....	191

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Editorials

Dated but not outdated

AMERICAN FARMERS are quick change artists. Their changes in agricultural technology of the last forty years are little short of amazing. Especially is this true when comparisons are made with the rate of change in India, China, and many other countries.

Does this development in technology make a difference? A quick look at the U.S.D.A. 1952 Agricultural Outlook Charts provides some pictorial proof. Output per man-hour increased from 74 (1935-39=100) in 1910 to 164 in 1951. Corresponding gains have not been achieved in 400 years by many other countries.

The immediate factors contributing to the advance are well known to teachers of agriculture. They include more use of machinery, electricity, petroleum, and fertilizers in farm production. Another direct factor is the adoption of improved varieties. New practices for controlling diseases, insects, and weeds should be noted.

By and large there are no secrets in this technology which would keep other peoples from taking advantage of the opportunity to apply it. Then, what factors inhibited its spread? What factors encouraged its rapid adoption by American farmers?

Education, especially education in agriculture, has contributed materially to the advance of our technology. There are many reasons why this has been possible, the principal one being our form of government which has provided a climate favorable to individual initiative and wide dissemination of ideas.

Teachers of agriculture have played an increasingly important role in the past forty years. As outcomes of their teaching they can point to many farms on which were initiated the use of labor saving machinery, hybrid seed corn, commercial fertilizer and countless other technological changes.

Those on whose shoulders rests responsibility for guiding farmers in periods of rapid technological change carry no little load. To keep their educational programs in adjustment requires continuous efforts. Wide reading of experiment station bulletins and other technical research reports is basic. Visits to experimental projects, demonstration farms and the like are desirable. In short a systematic program of professional improvement is required of teachers who would not be dated—outdated. If agricultural teaching is not adjusted to modern technology and with regard to what it may become there is no likelihood that it will serve as a means of securing progressive adoption of new ways of farming.

Teaching is indirectly concerned with fostering technological changes. It is directly concerned with changing individuals' skills, attitudes, understandings and the like. But, such skills, attitudes and understandings are specific. We develop skills in operating a hay baler—we increase understanding with regard to relationships between fertilizer usage and yields—we develop attitudes favorable to trying out a new practice of weed control. Thus, teaching induces those changes in individuals essential to advancing the technology of agriculture now and in the future.

Obviously, to use the most efficient methods in effecting this change in individuals is desirable. Here too, the additions to our knowledge are increasing each year. The need for keeping up to date is no less in the area of educational research than it is in the area of agricultural technology.

Operating independently we would face an impossible task in seeking to continually adjust our teaching. Working cooperatively and with the assistance of many others, we can solve our problems more effectively and efficiently. Our colleges of agriculture and education are generally well aware of the nature of the problem. They stand ready to provide

Teach for tomorrow

CAN YOU FACE your present students ten years from now and know that they had good training? Can you face your students of only five years ago and see that you taught what they now need? The answer could be NO! It's a shame that we teachers, doing our job, working hard, and worrying a lot, can teach so little that is usable by the time our students really get in gear. But, we *can* teach for tomorrow if we will but rise to the task. To do less is to do too little.

In the first place, we are victims of custom, and of hero worship. Let us *think* about our job as a whole. We are doing a lot. But that which we are doing is behind times in many cases. It follows a pattern that is old and worn out.

Here are some examples: A boy takes agriculture, learns from a teacher who learned from teachers before. The boy becomes a teacher and teaches most of the things he learned in the same way and for the same ends. He has been to a college which waits ten years after most good practices are introduced to introduce them to future teachers and farmers. He is behind the times before he begins to teach!

I have seen teachers argue for practices that are no longer recommended! You have too. We are guilty of TEACHING YESTERDAY'S AGRICULTURE TO TOMORROW'S FARMERS. We are GOOD followers but apparently POOR leaders.

How can we build leaders from boys who follow leaders who follow leaders, etc.? We build followers in this manner but not leaders.

We now need to teach principles and fundamentals more completely. Skills are important, but they can be acquired in later life more easily than principles and fundamentals. We should teach skills, but we should not lose sleep if the last day of school approaches and we have not taught the senior boys how to remove needle teeth (an outdated practice, incidentally).

Many farmers keep up to date on IDEAS through farm magazines. Some take two or three magazines and read them from cover to cover. We might do well to rely *more* on magazines, and *less* on bulletins from colleges.

Let us teach well the things that are simple. Let us teach the fundamentals of soils, livestock, fertilizers, genetics, farm mechanics and others that we *know* we must. Let us help these boys to become well *grounded* in fundamentals.

Let us teach them to think for themselves. Discussions that are democratic, study periods that are informal (yet controlled), and field trips that are well planned and followed up are helpful in developing the inclination to think. We can be more boring by "trying to cover the material" than by simply "exposing the material methodically and well."

Let us leave off many of the little details and stress the principles. If we teach a love for good livestock, we have also taught feeding, management skills and general care. Because a person who loves good livestock will study to learn what he failed to learn in school. We can teach boys to love the soil, the field of waving grain, the spark of liberty and other things. We must inspire them to greater heights by setting up the standards for them. Give them a goal to shoot for.

— DAVID R. ARCHER, Teacher,
Golden City, Missouri

numerous services and aids. Whether or not such services are adequate and effective depends to a good part on us as teachers. Cooperatively, we can seek to improve the services provided. Our task of maintaining effective up-to-date instruction can be made easier, thereby.

Today's Research Shapes Tomorrow's Farming

BYRON T. SHAW, Deputy Administrator, Agricultural Research Administration, U. S. Department of Agriculture



B. T. Shaw

RECENTLY, I had an opportunity to look over the report books of several Future Farmers Chapters. I was delighted to discover so many instances where your students were applying on their home farms the results of agricultural research. I found references

to livestock rings which made loans to students so that they could get started with good animals and later repay the loans out of their own herds. Joint ownership of modern spraying and dusting machinery made it possible for many student farmers to utilize latest results of research in the control of diseases and insects. I also noted references to use of certified seed, to crop rotations, and to fertilizer experiments on your demonstration farms.

I realize that to you folks there is nothing new about this. It is just part of the day's work for you and the thousands of other vocational agriculture teachers throughout the Nation. But to someone who is not so familiar with your work these examples have profound implications. They serve as a forecast of the kind of farming we may expect from the next generation. If the reports I saw are a fair sample, I think the farming of tomorrow will be in good hands.

Science and Man's Progress

Obviously, I don't need to remind you of the part that science has played in man's progress. The products of scientific research are all about us. You know, too, that great changes have taken place on the farm. You helped to bring them about through your teaching. But we might consider the total significance of these changes, for this has a bearing on the future.

Several things are clear. The farm population is smaller, yet we are producing record-breaking crops. Crop yields are 45 per cent higher now than they were 30 years ago. One person on the farm produces enough for himself and 14 others. Compare that with the early days of our country when it took 9 people to produce enough for 10, or even 50 years ago when 1 person could supply himself and only 7 others. People have gone from the farms to build our cities and man our industries, but we are eating better than ever before.

Farming has become a business enterprise as well as a way of life. Farms are larger, machinery is widely used, and workers are more productive. We have new and better ways of controlling insects and diseases, better growing

especially adapted to current conditions. The farm has become a series of problems in management, production schedules, worker efficiency, technical know-how, and marketing. No wonder our farmers must rely on research. They must have a steady flow of better methods and materials if they are to keep up with today's fast pace.

Some Recent Results

Because of research we are producing more food and fiber on fewer acres with fewer workers. Take potatoes, for instance. In the last 15 years acreage has been cut in half, but the yield per acre has doubled—so potatoes still are plentiful. Consider corn. Since 1935 corn acreage has gone down about 13 per cent, but yields per acre have gone up 50 per cent. Of course, you know the answer—hybrid corn and improved management. Look at eggs. In 1935 hens on the average laid one egg every three days, now they lay an egg about every two days. And what about that new industry, commercial broiler production? Thirty years ago such an industry was not possible. Even 16 years ago we produced only 1 pound of broiler per person. Last year we produced 12 pounds. Fried chicken no longer is a Sunday dinner luxury. We have also made real gains in the war on insects. DDT and other new insecticides gave us weapons with almost unbelievable promise.

Think of the change in crop varieties. Most of your students in the hard spring wheat region have never planted Marquis wheat. Yet their fathers in the 1920's probably didn't use any other kind. Today your students are learning about the wheats resistant to stem rust that came into general use a dozen years ago. Tomorrow they will be using still newer varieties, which our scientists must develop to resist the new race 15B that is now threatening destruction.

Plants have also been changed to fit mechanized production. Breeders whittled the sorghum plant down in size to fit the grain combine. They developed small grain with stems that can stand up to the combine. They developed sturdier shanks on hybrids and put the ears of corn at an even height to fit the corn picker. They managed to lift the bean pods higher on the soybean plant to fit the combine. And I feel sure that breeders will adjust the cotton plant to fit machines better.

Education and Research

I could go on. There are many interesting stories of agricultural changes. But the point is this: All are products of research. And education is the pipeline that has funneled these products to the farm.

I don't need to retell the history of the land-grant colleges, state extension services, and the department of agriculture to prove that close teamwork by research and education is the reason for farming progress. The Smith-Hughes Vocational Education Act of 1917

carried the teamwork a step further by making it possible to utilize the public schools.

Those of us engaged in research have a clear-cut responsibility to the teachers of agriculture and to all others who work for better farming in the United States. We must make the research findings available in a form that you can use in your everyday contacts with students and their parents. We also must be sure that our research will produce the information that farmers need. We can do that only with the intelligent advice of those who use our products.

You folks in education also have a responsibility to us. We need suggestions on what the most acute problems are, but we need to know that the advice comes from a clear awareness of the research process and what it can do. I believe one of the best places to develop that awareness is in the vocational agriculture course.

The Future Farmer reports show that vo-ag students are learning up-to-the-minute methods of animal nutrition. They know the results that come from using vitamin B₁₂ and antibiotics in poultry and swine feeds. But I wonder if they know about the research that made it possible? And what it means to the Nation in terms of more meat and the savings in feed costs? Shouldn't they have an understanding of these things, too?

Farmers have a large interest in research. We try to gear our research to meet their needs. Future farmers can use this public service more effectively if their instruction goes beyond the how-to-do-it stage far enough to develop an appreciation of the importance of science in their work. For example, we all know that scientists are constantly breeding new varieties of crop plants to fit new conditions. But do we know the story of how this came about, and how long it takes—with the best of luck—to create a new variety?

Research Is Mainly Hard Work

There isn't a major crop plant today that doesn't have germ plasm from other lands. Plant explorers have brought 190,000 separate plant introductions to this country in the last 50 years. Their world-wide-search for germ plasm made it possible to improve our crops and establish new ones here. The adventures of these explorers make fascinating reading. But the results of their work are even more fascinating. We have soybeans, persimmons, tung nuts, and dates as important new crops. We have improved almost everything grown on the farm. By using alfalfa from Turkestan that contained genes of resistance, we have even been able to crack the tough problem of bacterial wilt in alfalfa. Ranger and Buffalo, two new varieties that resulted, have been increased recently for large-scale use. They should make a big difference in the quality of our forage crops.

Research of this type is based upon

Talk before the Agricultural Education Section, American Vocational Association, Minneapolis, Minnesota, November 27, 1951.
practices, and new varieties of crops

well-known principles. Many people think there is something mysterious and miraculous about research. As a matter of fact, it is mainly hard work and a lot of it. Many years ago a young department scientist was sent to South Carolina to help a plantation owner develop a type of cotton resistant to the wilt disease. Together these men made history by deliberately planting selected seed on wilt-infested soil and saving seed from the plants that survived. This work gave rise to several new varieties of cotton, but we remember it today because it was the first instance of breeding for disease resistance, and laid down a pattern for crop improvement we have used ever since.

Potential Is Great

If the vocational teacher gives to our future farmers a clear vision of how science is now helping, and what it can do for them in the future, I'm sure that American agriculture can continue to advance. And it must advance, for the demands on our farmers are increasing daily. Unfortunately, there is a current philosophy in some places that everything is up-to-date in farming—that we have gone about as far as we can go with regard to efficiency and capacity to produce. Nothing could be farther from the truth.

Science so far has merely opened the door. The potentials that lie ahead are great, but it will take continued research—aggressive and far-sighted—to make these potentials come true. For example, we have about 50 varieties of wheat, oats, and other cereal crops that combine high yields with resistance to several diseases. We have new varieties of sugar beets, tobacco, and potatoes with multiple resistance and are making progress with other crops. If we can develop varieties resistant to several diseases, to insects, nematodes, and to temperature and moisture extremes as well, I'm sure many production problems on the farm will be solved.

Suppose we could develop for the entire country hybrid corn that's fully resistant to the European corn borer! That would mean tremendous savings for farmers. Can hybrid vigor do as much for other crops as it has done for corn? We don't know, but it worked for onions, and prospects look good for sugar beets and sorghums. And we are working on many other crops.

The use of grass-legume mixtures has been a big advance in the last several years. Improved legumes already available can boost forage crop production as much as hybrid corn increased grain production—and we have barely advanced to the front lines in attacking this problem.

I could cite potential after potential. Just what are the limits to increasing yields by use of fertilizers, spacing of plants, depth of planting, and weed control? Can the rooting zone for plants be extended into the subsoil? The potentials from improved soil management and water conservation can scarcely be measured. How much further can we go in mechanization? If cotton production is fully mechanized, you will see a

radical change in farming in the South. What about meat production? Research already is showing us how to increase our supply through breeding faster-growing cattle, and by finding ways of getting more meat from the rations we feed. A recent experiment shows the possibilities. A 2-pound-a-day gain in the feed lot is considered very good, yet by using selected rapid-growing stock our scientists obtained a gain of 3 pounds a day, or an increase of 50 per cent. We need continued research to make the techniques available for commercial use.

I'm sure some of our Future Farmers have worked with the new meat-type hogs developed by the department and the state agricultural experiment stations. Here in Minnesota they have released Minnesota No. 1 and No. 2, and over in Montana they have the Montana No. 1. These produce 5 to 6 per cent more of the choice cuts than the average hog going to market today. As a result, some of the Future Farmers of tomorrow are going to be setting new records in pork production.

Current Needs and Problems

All these problems of agriculture must be solved by research. They are only aspects of the broad problem of food. Demand for food is increasing as our population increases. Civilian food consumption last year was almost 30 per cent greater than in the pre-war period 1935-39. Economists report that this year it is 32 per cent greater. It may be even higher in succeeding years. How can we meet this demand and maintain our standard of living? Of course, some land frontiers are still available through irrigation, such as in the Columbia River Basin and parts of the Missouri Valley, or by drainage in the Mississippi Basin. Most of the increase, however, must come from higher yields on our present crop and pasture lands.

We can't afford to rest, not when we think that world food demands are even more pressing than ours. No, everything is not up-to-date in farming—because the date keeps changing and moving ahead. Unless we can accelerate our research, we will do well if we can keep from falling behind.

One or two points will illustrate this urgency. More than 30,000 plant diseases cause terrific losses. Nature never takes a holiday from producing new disease forms. As our agricultural areas become older the problem is aggravated because disease organisms build up in numbers over the years and become sources of infection for succeeding crops. The organisms divide, multiply, and cross-breed. They take on new characteristics. New strains develop, sometimes more deadly than the old. The varieties that had been developed to resist the old strains of a disease can't resist the new. This has been especially true of small grains and forage crops. Even with soybeans, a comparatively new

Men are wise in proportion, not to their experience, but to their capacity for experience.

crop, diseases such as brown stem rot and frogeye are becoming more important.

The new 15B race of wheat stem rust is an excellent illustration of what happens when a disease organism hybridizes in nature. We can't afford to relax our research for new varieties to meet the changing conditions. And we can't neglect the fundamental research to determine the basic principles we can apply to the specific farm or crop problem.

We have more than 650 major insect pests to deal with. You may have heard of the house flies in our Beltsville laboratories that live and thrive in a cage coated with DDT. These flies offer another illustration of the need for basic research. Our entomologists must continue to hunt for basic principles—facts that will disclose how and why insects adapt themselves to almost any condition, even deadly doses of insecticide. Practical attempts to control an insect pest may be only a succession of temporary victories and semi-permanent defeats until its life history has been learned and its physiological processes analyzed. When department scientists discovered the powerful toxicity of DDT against flies, lice, and mosquitoes in 1942 they thought we finally had these pests licked. But by 1947 houseflies had developed resistance to DDT; by 1949, some species of mosquitoes. Within the past few months, Red Chinese prisoners in Korea have been found with lice that our medical people couldn't control with insecticides. So the search goes on, not only for new practical means of control, but also for the fundamental principles.

Research in Soils

In looking ahead to see how today's research shapes tomorrow's farming, let's consider soils.

Improved farm practices in soil management have changed millions of acres. Many fields once considered worn out have been made productive. Research is showing what we can do to restore the nutrient balance lost by cropping, leaching, and soil erosion, and increase the yield on many types of land.

Radioactive isotope tracers have been put to use since the war to unlock secrets of how plants take up materials of the earth. We have learned the phosphorous needs of various plants at different stages of growth and the efficiency of different phosphates. Tracer research also is giving us data on other elements such as sulfur, calcium, manganese, zinc, cobalt, and copper. We are using the technique to study other phases of plant physiology, such as learning how plant-growth regulators change a plant's growth and why they affect some plants but not others.

One of the biggest changes taking place in crop production is in the use of fertilizer. We are learning more about how much to use, when to use it, and how to place it properly. This is especially important now because fertilizer supplies are being restricted by production for national defense.

Research we are doing in improving grasslands is providing another tool
(Continued on Page 187)

Using the group project

To keep abreast of technological advances

ELWYN MILLER, Graduate Assistant in Education, Michigan State College



Elwyn Miller

IF you want to make a group of farm people sit up and think, you have only to make statements like—"Think of the advances that have occurred in agriculture within the last ten years" or "Compare the farm practices of the good old days with those in use today"

and you have accomplished that purpose. Farmers are concerned with the practical uses of technological advances as they are developed. If these advances are such a source of thought and concern to farm people, then it behoves the teacher of vocational agriculture, who trains these people for proficiency in their occupation, to be fully familiar with the practical uses of these advances as they are developed. Furthermore the teacher of vocational agriculture has the responsibility of relaying these practices to the farmers and Future Farmers through an instructional program. The group project offers a fine opportunity for both the teacher and the student to keep up to date.

Successful Inter-Chapter Contest

One group project that has been used successfully in Michigan for the last two years (1950 and 1951) and continued this year is the F.F.A. Chapter Chicken of Tomorrow Contest. This contest was started through the joint efforts of extension poultrymen of Michigan State College and the state staffs in agricultural education. This project has as its objective the development of abilities in Future Farmers for producing baby chicks to the broiler marketing stage. The projects are carried on using the best practices known in poultry raising. It is hoped that the practices not common in the community will be proved in the project to the extent that they will be adopted on the home farms of the Future Farmers participating in the group project. The way this is accomplished is explained below.

The rules of the contest specify the starting date and the date of marketing the broilers. Records must be kept on feed, market weight, expenses and receipts. Each chapter selects fifteen birds which are dressed and then judged on carcass quality in competition with the birds selected by the other chapters in the contest. The final awards in the contest are determined by a combination of scores based on the carcass quality and on the production records.

Although the quality of the dressed birds was uniformly high and the rates of gain were quite outstanding, there was still considerable variation in the results of the projects for the two

years the contest has been operated. For example one chapter required 60 per cent more feed to produce a pound of gain than the best chapter. Since the birds were started and marketed on the same dates, age should be ruled out as a factor. Undoubtedly the quality of the feed fed as well as health of the birds have influenced these results. Other factors which have an influence on the proficiency of a poultry project are (1) quality of chicks purchased, (2) brooding and housing practices, (3) mortality, and (4) weight of the birds at marketing. The ranges and the average for all projects for some of these measures may be found in the accompanying table. Standards which the extension poultrymen have recommended are (1) three pounds of feed per pound of gain, (2) four-pound average weight at 12 weeks of age, and (3) a five per cent loss as the maximum tolerance for mortality. These may be expressed as 3-4-5.

It is obvious from the table that Michigan chapters as a group need to

Some new practices have been adopted by several of the chapters including the use of antibiotics to lower chick mortality and to increase the rate and efficiency of gains and the use of infrared lamps to supply heat more effectively. Some chapters found that they could purchase concentrates containing the desired feed elements and use this with their own grain. This made a more desirable feed and at a lower cost than purchased broiler mash. More economical gains resulted.

Mistakes Analyzed

There were also instances in which the chapters followed a wrong practice or in which they made mistakes in approved production practices. In some cases feed was wasted due to filling feeders too full. Some chapters used disinfectants in the drinking water. This expense could have been avoided by using proper sanitary precautions. Several chapters had their building too warm. This resulted in poor feathering. Other chapters had over-crowding, wet litter, and insufficient feeder space. Cannibalism resulted. Still others in using sulfa drugs to prevent coccidiosis, used it at treatment strength thereby causing unnecessary expense.

The extension poultrymen pointed out

TABLE I. The average and range for measures of efficiency in poultry projects.

Measure	Range*	Average
Feed efficiency (Pound feed per pound gain)	2.8-4.5 pounds	3.7 pounds
Average weight	4.6-3.0 pounds	3.5 pounds
Mortality	0-17 per cent	4.0 per cent
Profit per bird	52c-4c	31c

*Figures on left represent best results.

improve their feeding efficiency, and to increase the weight of birds produced. Only in the per cent of chicks raised do they exceed the standard which has been recommended. However, for each measure more than one chapter has exceeded the goal set.

Method of Scoring Fosters Use of Improved Practices

In scoring the contest measures of productive efficiency as well as the quality of the product have been considered. The score on the dressed product is 60 per cent of the total. Thirty-six per cent is given for measures of productive efficiency and four per cent for the chapters' report of the project which emphasizes what the members learned from the group project which they can use in similar projects at home.

The contest motivated teachers and students to get up-to-date in practices of production, management, marketing, and record keeping since many chapters are failing to reach the standard which has been set for good poultry raising. An extension poultryman has visited the chapters to make suggestions for improving practices while the projects are being conducted.

one marketing mistake made by several of the chapters. The mistake was not placing straw or some litter material in the marketing crates. Bruises on the breasts resulted when transporting the chickens to market, lowering the carcass grade from a grade "A" carcass to a grade "C" carcass. The extension poultrymen considered the carrying of insurance on the broilers essential. This management practice was followed by only two chapters.

The failure of chapters to reach the standard set up for good poultry production and the problems related to the improved practices adopted in the project emphasized to the teacher and to the entire group cooperating in the project the importance of keeping abreast of technological advances.

Proficiency in farming increases only as rapidly as constant evaluation and improvements in practices are made. Having been the teacher of a participating chapter in the contest, I know there is considerable value in this group project as a means of keeping abreast of technological advances and the increasing of the farming proficiency of those boys involved in the project. •

Community farms as the laboratory

JOHN GRIFFITH, Teacher, Toppenish, Washington

FOR the past several years in our vocational agricultural program we have become increasingly aware of the value of using farms in our community and throughout the valley as our laboratory.

In the central Yakima Valley we have a highly diversified agriculture and highly specialized farming, along with some general farming. Many of the specialized farms and others have well-trained, well-informed operators and managers who keep abreast of new developments, new insecticides, and new practices. Efficient operators of this kind may be found on large farms or small farms. They may be highly specialized or in some cases general farmers. Management practices which these farmers are using in our community, and have used with success over the years, are the ones that we would like to impart to our young men, be they Future Farmers or the veteran trainees. We use the farm as the laboratory and the operator in many cases as the instructor.

For training purposes our group of veteran trainees is divided into several smaller groups such as crops and soils, animal husbandry, and horticulture. Let us say our animal husbandry group is preparing to start a study of dairying. We often try to begin our unit of work by observing some dairy farms and by having a good operator talk to our group. Other times we take the tour during the unit of study or have series of tours.

All-Day Instructional Trips

We ask our new men in dairying how many would enjoy getting out on the farm for a day and seeing what some of the efficient operators are doing. Next, we contact the farmer whom we wish to visit and make arrangements for a certain day. We also ask him if he will explain his program to us, show us records of his herd, and show us his pastures, buildings, and herd.

Generally we like to stop at two or three such farms, discussing the various management phases with various farmers. We have found that each ranch is a little different and this gives our students a chance to consider the practices that more nearly fit into their individual ranch operations. We like to use a day for these farm management tours and generally start them at nine o'clock and stop promptly at four in the afternoon. Usually we eat lunch together, in summer taking a sack lunch but in winter often eating in a nearby restaurant. This gives us a chance to visit about and discuss the morning's program. Also, when we can use one of the school busses it always makes a more efficient teaching day, because we have the group where we can explain things to them more easily and where a helpful exchange of ideas is possible.

We have found that our field trips generally divide into two types of trips.

We think of these as "doing trips" and "observation trips." As in all learning, in most cases our doing trips are the more valuable. This last spring our veteran instructor in crops and soils, Robert Gehlen, used a farm at the edge of town as a laboratory for very effective teaching. He conducted a three-day short course in land leveling and irrigation. Here the students actually made the topography survey, used soil augers, ran new ditch lines, etc. Working cooperatively with Mr. Gehlen on this project were the soil conservation men of the Yakima Indian Service. Our fruit group has conducted many similar trips and always with effective results. Last spring, our fruit group plotted and set out a small acreage of fruit, working under the horticulture instructor, Ernest Leuning.

Local Experimental Projects Viewed

Though using farms as a laboratory for doing is most valuable, we are confident our students also get much benefit from observation trips. Most common of these are the observation of farm crops and herds. For several years we have spent considerable time on farms observing irrigated pastures and talking with operators as to cultural practices and utilization of such pastures. This is true of all other important crops grown in our area.

Not to be overlooked in our use of the farms as a laboratory are the commercial farms and their experimental work. In every case, we have found the managers happy to show us their experimental plots or farms and to explain their findings. In early spring before much farm work had started, a large group of veteran trainees spent a day on the Carnation Milk Farms at Carnation, Washington. Included in the day's program was a demonstration of artificial insemination, a discussion of feeds used and methods of storage, a tour of the farm including the experimental work on poultry and hogs, and a tour of the dog kennels. Also, the men enjoyed seeing the outstanding milk cows and especially the world's record cow. Many other examples of using commercial farms as our laboratory could be listed.

Some of our best work in the use of the farm as a laboratory has been done in cooperation with the extension service of our county. In a number of instances, the work to be done on the farm was set up jointly by extension service men and myself. Such was the case when we set up weed demonstration plots on various farms. The plots on the farms were treated differently and the results analyzed.

More and more we can see greater results from our use of the farm as a laboratory. To actually do the job or see it done usually makes more of an impression on the students than reading about it or hearing it explained by the instructor.

What teaching material to use?

T. A. DUNNING, Teacher, St. Paul, Nebraska

IN adjusting our agricultural teaching to the continually occurring technological changes in the field it is of utmost importance that we always be on the alert to be certain that we are using up-to-the-minute teaching materials and that these materials be appropriate for their proposed uses.

Three main types of teaching materials used in vocational agricultural instructional work are: references, illustrative materials and visual aids.

Possibilities of reference material may include bulletins from state colleges; releases from experiment stations and newspapers and magazines. Bulletins and periodicals are of more value in keeping instruction up-to-date than are textbooks because of their current publication and smaller expense. Magazines and newspapers are often the first to mention new developments and information.

Illustrative material may include items such as charts from industrial concerns, pictures from breed associations of latest desired types of livestock, and scale models of machinery from implement dealers. These types of illustrative materials are usually timely and readily available to the alert instructor. They help in familiarizing the student with

new livestock types and new machinery types which may not have yet found their way into the local community.

Many instructors make use of a 35 mm. camera to take colored slides and black and white pictures of students' supervised farming programs, to contrast good practices with bad and take operational job sequences to show proper procedure.

Evaluation of these instructional materials may be accomplished most effectively through observation of changes occurring in the students' supervised farming programs. Observation of increased interest in students evidenced by increased use of magazines and periodicals and so forth which depict new farming developments is also a good guide.

The prime objective of the instructor in striving to keep abreast of developments in our ever changing agriculture is to make every effort to use the latest data in his teaching, whether it be in the form of references, illustrative material or visual aids.

"Delinquency is a measure of adult neglect of children, for the children are all right when we get them."—Earl C. Kelley in *Education for What Is Real*.

Securing instruction on field trips

STANLEY WALL, Teacher Education, University of Kentucky



Stanley Wall

THE terms "field trip" and "on-farm instruction" are not new in vocational agriculture. Since the beginning of our program, we have recognized the importance of on-farm instruction in training for proficiency in farming.

The fact under-

lying the use of field trips in teaching is that the students can learn what something really means by responding actively to it, whether it be an observational response or a doing response. One can see it in its natural form, see it in operation, or perform it in a true-to-life situation. The richer our experience with a situation, the more meaningful is the experience and the greater the amount of learning from it.

Visual observation may play an important role in the learner's getting a concept of how a practice or manipulation should be carried out. It may give him a concept of what is involved in a situation or in establishing an ideal or goal to work toward. Learning experiences in the classroom can cover only a part of the experiences needed to teach farming, as many of the things the students need to observe or many of the manipulative experiences that need to be taught cannot be brought to the classroom. We must get outside the school walls if our teaching is to contribute most effectively to our aim of training for proficiency in farming.

What Are Major Purposes?

The field trip should be a serious educational experience, aimed to reach important, planned, teaching objectives. It is a means of bringing together the things taken up in the classroom and the practices carried out on the farm. It is also valuable because it can influence attitudes. Gaining additional information, such as seeing something in actual operation, may influence one's attitude as to whether it will work or not. It may cause the student to recognize that he has difficulties in a situation where, before, he did not recognize any difficulty.

Much of our teaching consists of developing manipulative abilities and the use of improved farming practices. Inasmuch as one learns what he practices, as much as possible of the original practice should be done under the supervision of the teacher. In order to teach an improved farming practice, the teacher must develop in the learner, in addition to other things, an understanding of how the practice is to be carried out. A student is not likely to use a new practice unless he thinks he knows how to use it. Many of the more complex practices require close super-

vision before most of the students will know how to carry them out. A teacher likely does not have enough time to give each student, separately, the necessary close supervision in all practices to be carried out by the student. For some of the more critical and complex practices much desirable learning can be secured through field trips.

There seems to be four major problems the teacher must consider if he is to succeed with field trips:

1. When and under what conditions should a field trip be used in teaching?
2. What plans should be made for taking the field trip, including: What is a good situation to use for the trip?
3. What teaching techniques should be used on the trip?
4. How evaluate the effectiveness of the trip?

When and Under What Conditions Should a Field Trip Be Used In Teaching?

A field trip can be justified only in terms of the learnings secured. There follows a brief outline of four conditions which may justify taking a field trip:

1. When there is need for developing or getting acquainted with a situation, and to cause the group to recognize their problems — these problems to lead to class discussion. For example, a group of boys may not realize that they have difficulties in producing good pastures until they see some good pasture programs. A trip to study good pastures might also cause the group to establish an ideal as to the kind of pasture they should be producing.
2. Where there is need to demonstrate or get practice in abilities that do not lend themselves to classroom teaching. The teacher always has the problem of deciding whether to bring to the classroom the things needed in developing an ability or take the students to the place where the things are. In teaching a manipulative ability, it is necessary to get practice in the operations performed. Often much teaching time may be saved by providing for the initial practice through field trips.
3. Many problems that boys will need help in solving cannot be solved in the classroom or cannot be solved until additional information and experience have been acquired by the group. Sometimes the most satisfactory way of acquiring such information or experience is to take the group to the source of the information and have them secure it "first hand."
4. See and observe or make application of things considered in organized class work. For example: after a series of lessons on "What soil and water-conserving practices should be followed?" Much

might be gained from observing the results of some good practices being carried out. Such an experience would reinforce the idea that the decisions reached in class will work.

As we have problems involving transportation, length of class periods, etc., we will usually not be able to take all the possible field trips. Those we do take should be carefully selected in order to give the most worthwhile instruction. The trip should contribute directly to the attainment of the teaching objective. After the teaching objectives have been decided on, one should determine whether they can be attained through instruction in the classroom, by taking field trips, a combination of the two, or in some other way. Then he should plan to have the necessary class meetings, either in the classroom or field, to most effectively attain the teaching objectives. The teacher should be in the classroom only when the intended learnings may be secured more effectively there than in the field, or vice versa.

What Plans Should Be Made For Taking the Trip?

Field trips should perhaps be more carefully planned than other types of instruction. Without careful planning, field-trip instruction is not likely to be good. The planning consists of: (1) teacher planning; (2) planning with the class; (3) making arrangements with the farmer or others for the trip.

Teacher planning. The teacher is responsible for guiding or directing the learning activities of the students and has the primary responsibility for planning the trip. He should look ahead and see where field trips should be used to secure the intended learnings in order that the field trips may be woven in as a smooth working part of the instruction, rather than stand out as a separate form of instruction poorly related to the other phases.

Among the things the teacher will need to do are:

1. Decide what he intends to accomplish through the field trip.
2. Decide on and arrange for the things that will be needed on the trip. Nothing will ruin a demonstration more quickly than being without some needed piece of equipment or some material.
3. Become familiar with, or have someone familiar with, the techniques or skills to be demonstrated, or the things to be observed. The teacher should visit the place of the planned field trip and be well informed of the experience that can be gained. (This should be done before discussing and making plans with the class.) If a demonstration is to be given, one should rehearse the procedure, if possible. If the students are to observe some practice or practices, such as those in developing a good pasture program, the teacher and farmer should take a look at each thing the students are expected to see, and discuss the questions the students are likely to ask.

4. Plan for each student to get practice in any techniques or skills to be acquired. This involves ample materials or facilities for each member to try his hand, under the supervision of the teacher.

Planning with the class. The students should have a part in the planning. The teacher should plan for them to have a part. Their having a part in the planning will help insure that they understand why the trip is being made. The students must know why they are taking the trip. Students usually fail to learn when the motive for learning is absent; when the thing to be learned seems unimportant, when it seems to lack any relationship to what they want to do—in short, when it has no significance to them. Students usually fail to learn when they do not see or understand what they are supposed to learn, or when they do not know what to do or how to do it.

Usually the need for field trips will grow out of instruction given in the classroom. Then, the planning for the field trip becomes a natural part of the classroom work. Sometimes a field trip is needed in motivating a problem or series of problems, or to evaluate the use of certain practices which cannot be done until some time after the classroom discussions. In such cases planning should be done with the class before taking the trip, preferably the day before.

These things should be made clear with the class while planning the field trip:

1. The nature and purpose of the trip. The students must know why they are making the trip and understand how the trip may contribute to solving their problem (unless the trip is to reveal a problem).
2. The things the students are expected to do before the meeting or to bring or do at the meeting. One must remember that there is not a specific ready-made meaning in the objects that may be observed. Some meanings may be gotten easily, others are more difficult. For example: It may be easy to see the green grass and the clover growing with it, but it is more difficult to see the clover as being an aid to the grass in its growth or to recognize what effect it may have on the value of the pasture as a livestock feed.

Making arrangements for the trip. The teacher must make plans and arrangements with the owner or operator of the farm or other place where the meeting is to be held. Here are some suggestions:

1. Select a farm with the facilities or conditions that provide a desirable teaching situation for what is to be taught. Select a farm or situation, preferably that of a student, that represents what the students should be doing.
2. Arrange with the farmer, or person in charge, for the group to be there at a certain time. Explain to him the purpose of the meeting, and go over with him the things you expect to deal with, so that he will be prepared to answer questions and help with the meeting. It is more meaningful to the students

for the farmer to answer their questions than for the teacher to tell them what the farmer has done and why.

3. Arrange with the principal for the class to be away from the school.

What Teaching Techniques Should Be Used on a Field Trip?

This question has been partially answered in discussing making plans for the trip. One can hardly plan unless he knows the techniques he expects to use. Here are some additional ideas:

1. Giving instruction on a field trip involves a teacher-learner relationship as in other teaching. It should not be a "showing and telling" procedure, but rather one of participation by the members of the group. The group has a problem to be solved, and we must not lose sight of the value of self-discovery and its relation to learning.
2. Work out a plan (teacher and students together) and provide copies to members of the group for recording observation and information to be gathered on the trip.
3. Use the demonstration procedure in teaching manipulative skills. Even though clear and definite plans have been made, review the decisions before starting the demonstration. Be sure each student is clear on what is to be done, how it is to be done, and why the ability is needed.
4. Organize the group so that all members can participate in all phases of the practice being demonstrated or the discussion of the practices observed.
5. Recognize the difficulty of teaching under outdoor conditions. Organize and arrange the group so they can hear and see what is going on.
6. Be certain each student understands how he can use the ability or other learning in his own situation.

How Evaluate or Follow-Through After the Trip?

The field trip should be a part of a learning experience that started before the trip and that continues after the trip. The things to be done after the trip are determined by the purposes of the trip. Referring to the purposes of taking a field trip listed previously, we note that one reason for taking a field trip may be to develop interest, or to get acquainted with a situation to cause the group to realize they had some difficulties in a farm operation. The follow-through on this kind of a trip might consist of evaluating what has been observed, to the extent necessary to cause the group to recognize the difficulty as it may exist in their own farming programs. Having located these difficulties and developed a desire to remove them, one can then decide on how to remove the difficulties—a basis for problem solving.

If the field trip was for demonstrating a skill or practice, the follow-through should insure that each student understands how to carry out the practice or use the skill in his own farming program.

If the field trip was for securing in-

formation needed to solve a problem, the follow-through consists of using the information in solving the problem. The information collected (means are needed for recording the information) is used instead of or to supplement the references.

If the field trip was for the purpose of applying a conclusion or conclusions, we should be sure each student understands how the things he has seen should concern him and how he may proceed in making use of them in his own farming.

Much of the follow-through should be done at the next class meeting after the trip. However, as with much other teaching, some follow-through will need to be done on the supervisory visits. If the field trip was important enough to justify using teaching time to take it, the things dealt with are important enough to be applied to the student's farming program. Good supervision of the practice is essential to learning. So field trips, for most effective teaching, should fit into the pattern of group instruction followed by supervision of the practices on the farm. ●

Prune curriculum

ROLAND L. ESSMAN, Teacher
Scotia, Nebraska

IT HAS BEEN nearly four years since my career started as an agricultural teacher. To some of you that is a comparatively short time. However, during that time there has continually been the problem of pruning my curriculum. Perhaps all of you have been faced with this same problem.

There are just so many school days in each year and we must fit our program to this amount of time. The only way we can accomplish this is to continually prune the curriculum and weed out all non-essential material.

Problem Is Two Fold

The problem breaks itself into two parts. They are as follows: consider the needs of the community in which one teaches; and realize the fact that everything cannot be taught in one year.

The simplest and easiest way to prune curriculum has been to consider the needs of the community. Once this is determined, a long step towards a shortened curriculum will have been taken. For instance, if sheep have very little place in the community, that part of the curriculum could be shortened or eliminated. In other words, teach only those things that apply to the general area, and forget the rest.

The second step that is followed in shortening curriculum is to teach over a period of four years rather than to try to cram everything into one year. It is better to teach a few things well, than many things halfway. There are other years in which to teach other things. We, as teachers must realize that the things we can teach are very limited. A student must acquire a vast share of his knowledge on his own. Therefore, we should limit our material to those things that will better enable him to acquire this

(Continued on Page 179)



A county-wide meeting of teachers of farm veterans, Searcy, Arkansas.

In-service training*

The responsibility of the teacher trainer

J. C. ATHERTON, Teacher of Education, University of Arkansas



J. C. Atherton

THE past nine or ten years have wrought considerable change in our program of teacher training. Some of these changes have been voluntary while others have been forced upon us. There are indications that others are in the offing. The question is, shall we attempt to foresee them and attempt to prepare for them, or shall we continue to ignore them until they are forced upon us? Shall we be satisfied to continue as we have in the past, or shall we attempt to visualize the future and then to facilitate the transition which is bound to come?

A little over five years ago we concluded military operations of what was called the "hot war," and almost at once we became embroiled in what is known now as the "cold war." Unfortunately, it has not remained entirely cold, even with the below zero temperatures in Korea. Now, we are in the process of mobilization again, which means that the stresses and strains with which we have been plagued in our program during this past decade will be continued and perhaps be intensified.

Achievements with Present Force Needed

We are losing some of our best teachers to the armed services, to business, and elsewhere. In spite of the fact that our veterans training programs are beginning to dwindle in scope, the surplus of teachers of a year ago has almost reached the vanishing point. The de-

mands upon teachers of vocational agriculture are increasing as the rural population attempts to adjust to the socio-economic pressures about it. The prospects are that with mobilization we shall have much smaller numbers of trainees in pre-service training. In addition to these problems we are faced with the fact that the departments of vocational agriculture have not made, and are not now making significant strides toward keeping pace with our socio-economic changes. Relatively few departments have established a philosophy concerning their functions in American democracy and in the communities where they exist. Still fewer of them have been able to implement their philosophy satisfactorily. This is not said in an effort to condemn what we have done in the past, but is a brief evaluation of where we now stand. For, I am convinced that we have made significant strides in our program since 1917. However, much remains to be done.

It seems to me that any immediate improvement made in our programs of vocational agriculture must be achieved by present teachers of vocational agriculture regardless of their preparation and proficiency. One phase of our job then as teacher trainers is to assist these present teachers so that they may become more effective. It is quite apparent that new teachers alone cannot revolutionize the profession. Even if teacher trainers should discover the ideal procedures of teacher preparation, the teachers we send into the various communities would still need help in becoming more proficient. Regardless of the superiority of their pre-service training, teachers of agriculture would continue to need additional professional help.

It is impossible to teach the college youth how to meet all of the problems that will face him when he assumes responsibility for a department of voca-

tional agriculture. Nor can we predict what his problems will be as he guides his program through the succeeding years. Both the teacher and his environment will change with the passing years.

Technological advances in farming and farm living are being made at an ever increasing rate. These make it difficult for the teacher of agriculture to keep up-to-date on all phases of the program for which he is largely responsible.

Since pre-service training alone will not produce the desired changes, it seems clearly evident that improvement in vocational agriculture is largely dependent upon our efforts to provide adequate programs of in-service training for teachers.

The Nature of a Well-Rounded Program of In-Service Training in Teacher Education

The in-service training program we provide should be comprehensive and should extend throughout the year. This field of education may be classified into two major phases. These are: (1) services provided "on campus" and (2) services provided out in the state or "off campus."

Educational services which may be provided at the teaching training institution include: (1) organized classes (2) conferences and special group meetings (3) preparation of teaching aids and other publications (4) research and (5) field service courses. The "off campus" educational activities consist of: (1) assistance for beginning teachers (2) visits to individual schools (3) demonstrations and pilot centers (4) interpreting publications and teaching aids (5) cooperation with the state supervisory staff (6) group meetings (7) itinerant teacher-training activities and (8) extramural or extension classes.

Some of these in-service activities may receive greater attention in some states than in others. However, there would seem to be a place for most of these in the program of any state.

Implementing the In-Service Training Program

1. On Campus

Probably the most common type of in-service education for teachers of vocational agriculture is the organized class at the teacher-training institution. These classes should be of two types, that is, (1) the traditional course for college credit and (2) short intensive courses of a few days' duration for which no credit is given. Both professional and technical courses should be offered. The proportion of each type of course to be given should be based upon the needs and wishes of the teachers in the field. These types of instruction should be conducted in each state every year. Frequently it may be possible to schedule the short courses so that they immediately precede or follow the annual conference of teachers or some other meeting so that the teachers do not have to make a special trip to the teacher-training institution to attend these sessions.

Conferences and group meetings offer many opportunities for in-service teach-

*From talk submitted at Thirty-Second Annual Southern Regional Conference, Agricultural Education.

ers. The annual conference of teachers of vocational agriculture, area conferences and others which may be held on the campus make it possible for the teacher-trainer and technical personnel to provide assistance for those attending. Many of these conferences are called or sponsored by the Agricultural Education Department. For example, in one state the cooperating teachers in the student-teaching program are brought in for three day conferences during each period of student teaching. Problems related to student teaching naturally occupy a place on the agenda of these meetings, but considerable time is also allotted for other phases of professional and technical improvement. Cooperating teachers who have participated in this program for several years believe it is one of the outstanding if not the outstanding service provided by that teacher-training institution. Another example is the research committee of the vocational agricultural teacher's association which holds periodic conferences with the teacher-trainers and state supervisory staff. These groups decide upon the studies to be made, how they should be carried out and then upon what use should be made of their findings. Still another type of conference is that of the advisory group of the state agricultural teachers association who work with the teacher-trainers in planning the types of programs which the advisory group believes should be conducted and steps which may be taken to implement these plans.

I believe we are all conscious of our responsibility for the preparation of teaching aids and other publications that may be of service to our teachers. Our Agricultural Engineering Department at the University of Arkansas has cooperated with us in publishing a recent monograph for teachers of agriculture and is now at work on another publication to be distributed to them. I will not comment further on this, other than to say that I wish a system could be devised whereby each teacher-training institution would get a copy of all publications of each institution within the region.

Research is needed if we are to continue to make progress in our profession. Through research we can evaluate present procedures and determine the needs of our programs. Effective methods may be found more readily by a program of systematic research. And in this program we should bear in mind that all those interested in the research should have a hand in it. This will include the teacher-trainer, the state supervisory staff and representatives of the teachers of vocational agriculture, and possibly others. The probability of those in our profession accepting the findings and doing something about them is enhanced considerably if they have participated in the study, the planning, the conducting and the evaluation of it.

Field service courses appear to be an excellent means of in-service training. However, in examining the courses of study or suggested courses in forty-five teacher-training institutions it was found that only four institutions offered this type of course. In these courses, the

teacher of vocational agriculture and the teacher-trainer jointly plan an activity or phase of the total program of vocational agriculture which the teacher will put into effect under the guidance of the teacher-trainer. Here, the teacher-trainer assists the teacher in developing that portion of his program which is not being conducted satisfactorily at present. Although this program is planned "on campus," it is actually carried out in the community where the teacher of agriculture is employed.

2. Off Campus

In this area of service, assistance to beginning teachers seems to be one of the most important. Unfortunately, it is too often slighted or completely neglected. A recent study of the activities of beginning teachers in Illinois indicated that a large number of them complete their undergraduate training without self-confidence, ability and understanding regarding many of their professional duties. If this condition is prevalent, it appears that we should provide a means whereby these fledgling teachers may gain self-confidence, ability, and understanding. Would we not make greater progress by assisting them in the development of adequate programs when they first become teachers rather than to try to change incorrect habits and attitudes later? It seems to me that these men have a set of problems all of their own and that they should receive help individually, and in segregated groups with others having similar problems.

Another area of in-service training is that of interpreting publications and teaching aids for our teachers. Most of us provide these materials in some quantity for personnel in the state. However, too often little use is made of them because they are not understood or the teacher fails to see their application to his local community. Group meetings seem to be a feasible means of presenting interpretations of these materials to our teachers. Through the cooperation of our Agricultural Engineering Department, several workshops in rural electrification were offered this summer in Arkansas. These were held in various sections of the state so that most teachers might be assisted at these meetings. Teaching materials were interpreted and experiences provided for developing new skills.

In the course of a year, the teacher-trainer will visit a number of the departments of vocational agriculture in his state. These contacts offer excellent opportunities for providing professional assistance for the local teacher of agriculture. Many problems can be observed and analyzed in their natural setting. It also provides an effectual means of discovering the professional and technical needs of teachers as a group. Thus, our pre-service and in-service programs may both be modified to fulfill these needs.

Through the use of demonstrations and pilot centers, new practices and procedures can be given a "field trial." Close coordination between these centers and the teacher-training department make it practical to study the effects upon the class and community of various innovations. Detailed study, evaluation,

and reports can be made of the activities and of community reaction to them. It may be possible, also, to arrange for other teachers of agriculture to visit these pilot centers from time to time and observe the activities first hand. Successful practices can be studied and new ideas secured by those visiting.

Extra-mural or extension classes provide assistance for the teacher of agriculture at times when immediate application may be made of the things taught. Problems facing the teacher in his daily tasks can be analyzed and discussed in the light of the setting in which they exist. Some teachers who would not return to the teacher-training institution for additional technical and professional assistance will attend these sessions when they are located within driving distance of their homes. Some local school administrators may attend these meetings also and gain a better insight of the program of vocational agriculture and its problems.

Areas Needing Educational Statesmanship

As our programs emerge from this period of national and international turmoil we shall find several problems related to in-service training facing us. They will demand the very best educational leadership we can muster for adequate solutions.

The first of these is the "Community School" concept of agricultural education. Shall we be content to let others take the lead in bringing the school back to the people, or shall we hold the initiative we have acquired through these past three decades? It seems clear that no pre-service curriculum alone can bring about this change. Such a result can only be attained by the cooperative planning of teacher-trainers, teachers of agriculture, administrators, other teachers, parents, students and the general public.

A second area demanding our best leadership is that of developing sane programs and policies of in-service training for the uncertain period which lies immediately ahead. In our planning for the immediate future we must keep before us a vision of the type program we wish to develop over the next few decades. Only in this manner can we keep our teacher-training on a sound basis.

Prune curriculum

(Continued from Page 177)

knowledge. We cannot possibly teach every boy everything; however, if we teach him to do a good job in one enterprise the chances are he will do a good job on others, without any help from us.

If we would follow these two simple rules, we would find it much easier to prune our curriculum. A system such as this would more or less automatically prune the curriculum for us.

All who are engaged in the work of American public education must be free to participate as individuals in constructive citizenship and democratic practices.

Focusing on new sights

C. S. ANDERSON, Teacher Education, The Pennsylvania State College



C. S. Anderson

WHOM said retired professors of Agricultural Education are just old men on the twilight side of the hill? It isn't so. I have before me long personal letters from eighteen of them, and I've concluded I'd hate to try to keep up with them. No, for them it is still the morning side of the mountain.

Some, to be sure, have rolled down their desks and turned the swivelling over to younger and more impatient men. But they have not stopped doing things, not by a long shot! They are now directing their efforts in different and varied channels, to the thousand-and-one things they had always wanted to do but never before had found time for.

After consulting old directories and writing to colleges and universities, I finally succeeded in locating twenty-five retired teacher-trainers. Eighteen replied to my letter or returned my questionnaire.

Only one in the group had retired prior to reaching the retirement age for his school. The retirement age and the conditions governing retirement vary greatly from institution to institution. Sixty is the earliest optional retirement age, seventy the latest compulsory age. A few colleges and universities still have no satisfactory plans for retiring employees. One school without provisions for retirement places its professors on one-half time work schedules but retains them on full-time pay upon reaching age seventy.

What Are They Doing?

Some continue and expand their activities in public and civic life.

Dr. G. A. Schmidt, widely and favorably known as the author of early texts in Agricultural Education, and as the originator of those glorious, never-to-be-forgotten summer sessions at The Colorado State College, retired seven years ago. Now in the summer time he serves as assessor in the village of



Dr. and Mrs. G. A. Schmidt (Colo.) enjoy outdoor living at their summer cottage. Dr. Schmidt built the barbecue and fireplace.

Estes Park, fishes, plays golf, and tinkers around his mountain cottage, getting it ready to be battened down for another winter. If he lingers too late, snow may cover the house, so by late October he and Mrs. Schmidt return to their residence in Fort Collins. During most of the winter he works as a farm land appraiser for the county clerk, and probably dreams of fishing and golfing and putting around again in Estes Park, come spring. Dr. Schmidt believes that most able-bodied retired men soon get fed up on reading, visiting, and touring the country. For him an outdoor, independent, part-time job supplies the interest missing in so many men's retirement days.



Dr. A. W. Nolan (Illinois) at the microphone speaking on the theme, "Rural Life."

Perhaps no living teacher-trainer retiree has made his influence felt in the lives of more agricultural teachers and rural people than has Dr. A. W. Nolan. For thirty years he served as Professor of Agricultural Education at the University of Illinois, one of the largest teacher-training centers in the country. He founded Alpha Tau Alpha, the honor society in Agricultural Education, and during his twenty years as national president of the fraternity more than four thousand teachers and students became members of A.T.A. Dr. Nolan retired ten years ago to his old home farm, and built, as he describes it, "a cottage by the side of the road" where the latch string is always out for his hundreds of admiring former students and friends. He still occasionally addresses service clubs, church groups and schools, and now and then writes a column. He has given over seven hundred broadcasts on the theme, "Rural Life."

They are men of the soil.

At least one-half of the retired professors of Agricultural Education own farms. Some have had them and have kept a managerial eye on them all during

their teaching careers. The farms vary in size from a small truck farm on the Atlantic seaboard to a half-section of Iowa corn land.

Dr. Sherman Dickinson is our really big-scale teacher-trainer farmer, although he scarcely qualifies as a retiree. Too young! But when I see 30 years as a teacher-trainer and three more years as a teacher of vocational agriculture on his service record, I wonder. After all, 33 years is a sizable segment of any man's life. Dr. Dickinson left his position as Professor of Agricultural Education at the University of Missouri to go

into turkey raising on Road's End Ranch, Valley of the Moon, Santa Rosa, California. He produces ten to twelve thousand turkeys annually and processes and distributes most of them in the form of Turkirolls, natural and smoked, Turkisteaks, Turkihamburgers, thighs and other parts. Some may have seen Sherm on TV with his turkey story last Thanksgiving. He is a director of the Santa Rosa Chamber of Commerce and chairman of its Agricultural Committee.

Travel rates high.

Nearly all of the retirees reported trips taken and planned, some abroad and many to various teacher-training institutions. Dr. C. B. Gentry of the University of Connecticut answered my letter while on a great circle tour that eventually would touch all the states but two. He urges retirees to do as much traveling as they can afford and recommends travel to all teachers as a means of broadening their understanding of people and farming practices.

Many continue teaching in one form or another.



A. M. Field

Dr. A. M. Field of the University of Minnesota claimed retirement from his duties as Head of the Department of Agricultural Education on age and years of service and then accepted an equally important but less demanding assignment in connection with the Veteran's Training Program.

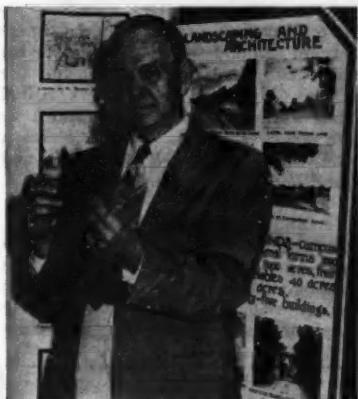
Dr. D. W. Parsons of the University of West Virginia and Dr. T. E. Sexauer

of the Iowa State College were both doing part-time teaching when they wrote me.

Perhaps Dr. W. A. Broyles is the best example of the teacher who retires to teach. His friends jokingly tell him they expect he will die with his cap and gown on. When Dr. Broyles reached the compulsory retirement age at Penn State, he promptly took off to an institution that retained men five years longer. Upon his second "retirement," from the Alabama Polytechnic Institute, he moved over to



D. W. Parsons



Dr. W. A. Broyles (Pa.) giving a demonstration on the use of visual aids.

his present teaching position at Berry College, Mount Berry, Georgia. Possessing good health and endowed with the facilities of a natural-born teacher, why shouldn't he continue to do the thing he most enjoys, that is, teach?

Dr. R. M. Stewart, for some time retired from Cornell University, took on a special study for the U.S. Office of Education, a study which has taken him to many of the Negro teacher-training institutions of the country.

Dr. Harold F. Cotterman of the University of Maryland refused to let me count him among the retirees, even though he fulfilled all the requirements of my questionnaire. He turned over his teacher-training responsibilities to others and then took on the job of Dean of The Faculty. I am afraid we may have quite a time getting Dean Cotterman into the retiree corral if he means what he wrote me, and I quote, "No sir, I am not retired! . . . The most miserable people I know are retired folks. . . . As for me I want to keep pounding away at the program in education as I have been doing for the past 40 years."



R. M. Stewart

College were both

Where Do They Live?

Some retirees trek off to Florida or California, but most of them keep their residence right where they have lived and worked, or they move back to the country where they spent their youth.



Dr. H. O. Sampson (N. J.) enjoys his grandchildren.

Dr. H. O. Sampson of Rutgers is an exception. He says it is tough to see others assuming your old responsibilities and running the show that once was yours. Better to move away to new horizons and make new associates. He moved to Scranton, Pennsylvania, where he has part-time employment and can fish with his grandchildren.

Mistakes? Plenty of Them!

I asked these men to look back over the years and tell us some of our mistakes. Most of them felt quite satisfied with the progress and accomplishments of Agricultural Education during its growing-up period. However, mistakes were mentioned, and I shall pass my correspondents' comments along.

(1) We still do not have a basic public understanding of the aims and purposes of vocational agriculture. (2) We have permitted vocational education to be too highly centralized. Many states, and communities too, could have developed better Agricultural Education programs working independently. (3) Many promising workers in our field have turned away from vocational agriculture because of the truckling expected of them in order to insure their professional advancement. (4) We should have a five-year teacher-training program in vocational agriculture. (5) We have confused classroom teachers in the orderly planning of their work by over emphasizing the principle that all teaching should be focused on the individual. It has made some teachers come to the ridiculous conclusion that nothing is to be taught for its basic value. (6) We have over-emphasized contests. (7) We have never developed and supported a truly professional organization within vocational education but instead have expected our AVA to function primarily as a pressure group.

Advice and Admonitions to Potential Retirees

Of course, I asked for some conditioners for those of us who would be coming along to join the ranks of the retirees. Here are a few, and again I quote: (1) Just loafing wears mighty thin after a short time. Better start now to develop a wide variety of non-professional outside interests. (2) Count definitely on a part-time job. There is no surer way to quickly grow old than to do nothing. (3) Test your interest in hobbies and explore the field thoroughly. (4) If you expect to move, read up on the desirable places to go to and be ready. And remember, it will not be easy to take off from the place you may have lived in for the past quarter century. (5) Start rearranging your financial and business affairs. It may be well to experience a trial run on living within your probable retirement income. (6) Count yourself fortunate if your retirement income does not quite cover. Then you will have to work a little—a blessing in disguise. (7) Retire early. Your zip may run out sooner than you think. (8) With the tensions and responsibilities of classroom activities left behind, retirement can be constructive, rewarding, and really fun; but only if you plan it that way.

Every letter I received was one for the records. I wish there were space to include more of their contents and the splendid action pictures that accompanied many of them. They presented a fascinating story of retired teacher-trainers in Agricultural Education still going full steam ahead, but with eyes focused on new sights.

Bass becomes supervisor vocational agriculture in Virginia

R. EDWARD BASS became State supervisor of vocational agriculture, effective November 1. In this position he will serve as advisor to the State Association of Future Farmers of America. Mr. Bass succeeds Frank B. Cale, who was made State director of vocational education the first of November, as a part of the reorganization plans of the State Department of Education.

Mr. Bass is a graduate of VPI in agricultural education. He taught vocational agriculture at Chilhowie, Virginia for nine years. In 1938 he became State supervisor of shop and construction projects for N.Y.A. Afterwards he became director of work projects and assistant State administrator for the organization.

For the past five years Mr. Bass has efficiently served as assistant State supervisor of vocational agriculture. In this capacity he has devoted much time, effort and energy to the promotion of Virginia's excellent F.F.A. program.

It is good to give the unfortunate a living; it is still better to raise them to a life worth living. It is not so much the infirmity that causes unhappiness as the grief of a useless dependent existence.

Young farmer education

R. W. CANADA, Teacher Education, Colorado A & M College



R. W. Canada

THE following deals with brief interpretive reviews of studies completed in agricultural education for young farmer or part-time education. No studies have been included prior to 1945. The studies as reviewed are classified under three headings.

Program Planning and Instructional Needs

Farming Status

Conversion of the Farm Veterans Program to a Permanent Young Farmer Program

Instructional Needs and Procedures

Investigations in this area show some common trends and results relative to instructional needs and procedure of the young farmer group.

Fife (1) reported in 1945 upon a study he had made in Ohio in 17 communities covering 100 veterans on furlough or returning from military service concerning their young farmer program needs. He also surveyed 101 teachers of vocational agriculture to obtain information concerning their specific needs for assistance in young farmer work. He found the veterans interested in getting together in a single broad educational program with the young farmers who had stayed at home combined with a short course in the college of agriculture. The teachers ranked their needs of assistance as follows: Special problems of returning veterans, organization of a young farmer program, securing teaching materials, providing vocational guidance, organizing technical courses, securing material for a discussion on general problems, conducting recreational and social activities, problems of placement, organizing a cooperative course for young farmers and homemakers and methods of teaching young farmers.

Teegarden (2) in 1946 made a survey to analyze the procedures used by 96 selected Ohio teachers of vocational agriculture in arriving at a program of activities for young farmers. He concluded that teachers apparently believe in the use of democratic methods of developing programs of activities for young farmers. However, the study indicated that teachers are not using the procedures which they believed to be most effective in developing the programs of activities of young farmers. The young farmers also concurred in this belief. Both teachers and young farmers favor cooperative planning of programs. The advisory council was listed by 36 teachers as valuable in the initiation of the program. Twenty-one teachers considered it satisfactory to plan meetings one session in advance while 75 thought

more comprehensive planning to be desirable. It was recommended that:

1. A complete program be planned for the teacher in cooperation with the committee of young farmers.
2. This program be submitted for discussion and possible adoption.
3. The teacher of vocational agriculture should always consult young farmers when developing any type of activity.
4. The teacher training and state supervisory staff should promote studies that will be of value to teachers in developing local programs of activities for young farmers.

In order to secure information concerning procedures used by instructors of superior young farmer programs in Ohio, Fife (3) in 1948 interviewed 15 instructors with varying years of experience and with programs in various stages of development. The more significant findings may be summarized as follows:

1. The majority of teachers did not bar young men above 30 years of age but attendance was not solicited after 36 years of age.
2. The objectives of young farmer programs in Ohio had broadened appreciably since 1940.

10. The instructors were of the opinion that the following differences are found between young farmer and high school instruction.

- a. More intensive and frequent use of experimental data should be used.
- b. Wider use of outside resource persons be made.
- c. Wider use be made of young farmer's actual experience.
- d. Young farmers move more rapidly.
- e. Young farmers have more fundamental information.
- f. Young farmers need less initial preparation.
- g. More extensive preparation is required on the part of teachers of young farmers.

Further findings revealed that (1) Visual Aids are of great value in teaching young farmer classes, (2) Successful teachers encouraged young farmers to begin to build supervised practice not later than the second session of the course, (3) Successful teachers visited young farmers practically as much as high school students, (4) There was a wide variation in social, recreational and round table discussions.

Farming Status

A study of considerable interest was made by Thomas (4) in 1950 of the farming status of 71 out-of-school young men in Wilcox County, Alabama. He found most of the young men, including

What do studies show?

This contribution is one in a series of twelve planned for the current volume. Each will review and interpret studies in a phase of the program in agricultural education. Each will provide the reader with an overview of the research and point up applications in a particular phase. The phases to be covered and the selection of possible contributors were planned with the A.V.A. Research Committee for Agriculture.

3. Current objectives included: (1) To aid in establishment in farming, (2) To give a better understanding of problems, (3) To organize a program of experiences so young farmers will learn to work together, (4) To provide healthy, social and recreational activities.
4. All teachers initiated their respective programs by calling together a group of five to ten representative young farmers of the community.
5. All teachers conducted some form of young farmer survey.
6. A young farmer organization was usually organized and officers elected during the first year.
7. The successful teachers indicated that more responsibility is placed upon young farmers as the organization progresses.
8. The experienced teachers indicated that it takes four to five years to develop a program to its maximum level.
9. Ohio young farmer groups have not been interested in organizing an adult advisory committee.

23 owners and 38 share renters, were on farms too small for economical production, low in quality of crop production practices and lacking sufficient productive livestock to provide a balanced farming organization and to produce enough income for an adequate living. Other findings and conclusions were:

1. Some supplementary employment was available.
2. Some credit facilities were available for developing the farm business.
3. In the process of adjustment some of the young men would need to find part or all of their opportunities in occupations other than farming.
4. The interest of the young men would justify expenditure of effort in developing an agricultural program which would include economic, social and recreational aspects.

Item 4 in the preceding paragraph tends to substantiate the findings of the research referred to under section one above relative to including the broader

aspects of economic, social and recreational activity in a program of young farmer instruction

Conversion of the Farm Veterans' Program to a Permanent Young Farmer Program

A study of current interest to workers in agricultural education is a study made by Hamlin (5) in Illinois in 1950. An attempt was made to gather data which would provoke thinking about the conversion of the program for farm veterans into a permanent program for young farmers.

Five approaches were used for the study as follows:

1. A survey of the opinions of boards of education regarding the veterans program and a young farmers program to replace it
2. A similar survey of councils advisory to agriculture departments and other representative groups of farmers.
3. Spot checks of young farmers available for classes.
4. A study of four young farmers classes.
5. A survey of proposals for a permanent program for young farmers by teachers of vocational agriculture and their administrators.

The findings and interpretations of this study were summarized as follows:

1. The program for farm veterans has made a generally favorable impression upon school boards and farmers.
2. Many Illinois boards of education are ready for a continuing program of education for young farmers.
3. The funds for young farmers education will apparently have to come from state and federal sources, supplemented in most cases by student fees, with the schools furnishing little more than space, heat, light and janitor service.
4. There are 75 to 100 young farmers, on the average, in each Illinois community having a department of vocational agriculture.
5. The teachers and administrators responding indicate that they are thinking seriously about a continuing program which will be less intensive and expensive than the veterans program, but more intensive and expensive than traditional young farmers programs have been.

Summarized, in a general way, the above studies seem to indicate the following trends relative to program planning and instructional needs:

1. Instruction for young farmers is tending toward the form of planned programs of instruction rather than miscellaneous, random offerings.
2. Programs of instruction should be planned for periods well in advance, even up to a year, for the class sessions.
3. The democratic approach in program planning is preferred and recommended. This is accomplished through the use of a committee of young farmers working with the vocational agriculture teacher who

Farming programs which lead to establishment

HENRY L. POLIS, Teacher, Stanwood, Washington

WHEN we enroll a student in vocational agriculture it is assumed that he has an interest in this field. If his interest is casual, it must be cultivated; otherwise he won't be going far with us. The main prerequisite to establishment is a personal interest that is captured and will be sustained by the activities of farm life. An instructor of vocational agriculture must fulfill a vital role in maintaining interest over the rough spots.

If we have the interest of the student and also the interest of the parents, there are definite possibilities for establishment in farming and the progress will be influenced by the opportunities presented. It may be a hard pull, but if we remember, "The person who rolls up his sleeves—seldom loses his shirt," it can be done.

The activities of a supervised farming program contribute definitely to establishment in farming. There is no question but what, with rare exceptions, an expanding farming program is a main artery toward actual farming. A program that is formulated early with a basic long-time plan including provisions for modifications is highly essential. Every student should be aware of the fact that farm operatorship, like most businesses, is attained by steady progression with definite objectives in mind.

To get a favorable start the student

constitute an overall program planning group.

4. Instructional programs for young farmers are tending to be broadened to encompass recreational and social activities, cooperative endeavor, discussion of general problems and placement aspects. Organized young farmer associations with officers are increasing.
5. More use of outside resource persons should be made.
6. Advisory councils are recommended in the majority of case but the Ohio Young Farmer Association have not been interested in organizing an adult advisory committee.

References Cited

1. Fife, Ray. *Developing Young Farmer Programs in Ohio*. Non-thesis Study, Bulletin No. 100, 1945, Ohio State University.
2. Teegearden, Wilkins H. *An Analysis of the Procedures Used by Selected Ohio Teachers of Vocational Agriculture in Arriving at a Program of Activities for Young Farmers*. Thesis, M.S., 1946, Ohio State University.
3. Fife, Ray. *The Objectives, Procedures, and Practices Affecting Selected Young Farmer Associations in Ohio*. Non-Thesis Study, 1948, Ohio State University.
4. Thomas, Clark Monroe. *A Study of the Farming Status of Out-of-School Young Men on Farms in Wilcox County, Alabama*. Thesis, M.Sc., 1950, The Ohio State University.
5. Hamlin, H. M. *Agricultural Education for Young Farmers in Illinois*. Non-Thesis Study, 1950, University of Illinois.

must have a supervised farming program which provides for opportunity to accumulate assets and develop increased efficiency of production. To meet these essentials the program should under ordinary conditions develop into the following:

1. At least one major project started early and expanded and improved over a period of years.
2. One or more minor projects to balance the program and add experience and income.
3. Contributory projects in keeping with the major and minor enterprises.
4. Improvement projects to add to the general conditions of the farm.
5. Supplementary farm practices to develop skills and confidence.

If we can aid a boy in developing such a program he will move ahead at a good rate. At times he may have to slow up for a bump or two and possibly take a couple of detours, but he has a fine start toward his destination.



A young farmer working toward establishment through a partnership with his father.

Many times it is necessary for a student to start with a minor project to obtain the finances to start into his major enterprises. In fact, we have a prominent farmer, a former student and State Farmer, who has become established in that way. He conducted primarily swine projects for his supervised farming program while in high school and is now a poultry and dairy farmer without a hog on the place. Nevertheless, he gives due credit to the experience and financial assets he gained during his high school career.

A student's farming program should conform basically to the established enterprises found in the community. In certain highly specialized areas it stands to reason that a student's program should also be specialized. Also, in areas of greater diversification the farming programs should be diversified.

Students should make their start toward establishment when they enter the all-day classes. During the following four-year period we have a chance to work with them constantly and to urge and advise them forward. It is also dur-

(Continued on Page 190)

Does it pay?

E. O. BOLENDER, District Supervisor,
Columbus, Ohio

PRACTICALLY every farm magazine one picks up today is calling attention to the importance of food and fiber in the present situation and the opportunity and challenge faced by farm folk. *Agricultural Education Magazine* is constantly emphasizing that leaders and teachers in agricultural education give to a more thorough going and more comprehensive program. But, just a few days ago I heard Mr. Mobley, Executive Secretary-Treasurer of the American Vocational Association, say that Congress is unusually economy-minded and that budgets and appropriations are being examined more carefully than has ever been done before. I believe we would agree that this is as it should be. Probably leaders and teachers in vocational education in agriculture should be examining the program more carefully than ever before and asking the question—"Does It Pay?"

Well, let's take the case of Robert King. I believe he is typical of many examples that could be cited. Bob was reared on a small farm of fifty acres and is the youngest of four children—



Robert King shows his two sons, Glen, 11, and Dale, 7, some of the first steps which he took in building his first poultry house. The poultry house in the picture was built by Robert while he was a student in vocational agriculture at Hilliards, Ohio.

two girls and two boys. He entered Norwich Township High School, Hilliards, Ohio, in the fall of 1923 and enrolled in the program in vocational agriculture.

As Bob entered his second year in vocational agriculture, he faced the problem of expanding his program so as to include a satisfactory livestock experience and also provide opportunity for added income. In meeting this situation, it seemed necessary that a project be developed that would not require an unusually large immediate financial outlay, one that would add to rather than call for a sharing of the present farm income, and desirable that an enterprise be developed that would give better balance to the farm program and calling



E. O. Bolender, the writer of this article, pays a visit to Robert King, one of his students of 25 years ago. In the background are the twin dairy barns which have been built by Mr. King since he began operating the home farm.

largely upon boy labor, and not making too heavy demands upon the present feed supply of the farm. After careful consideration Bob and his teacher of vocational agriculture, with the counsel and approval of his parents, it was decided that the poultry enterprise would best meet the needs and requirements outlined above.

In March of 1925 about 450 White Leghorn chicks arrived at the railroad station in Hilliards, and with his trusty Model T Ford, Bob's teacher of vocational agriculture rushed Bob and his chicks to their brooding quarters, the corner room of an old log house; the house, and probably the room, in which Bob was born. Good brooding facilities were provided at a minimum of expense and everyone seemed happy including the chicks.

The next problem was the provision of facilities for the pullet laying flock as adequate housing was absolutely nonexistent. Bob had secured a personal loan of \$200.00 to aid him in financing this program; therefore, as an economy measure it was necessary that he and his father do the work in building the laying house. Since they lacked experience in laying out a foundation and getting the project under way, Bob's teacher of vocational agriculture spent about a day with them at this point. He also gave them help again when they reached the job of cutting and placing the rafters. By time to house the pullets they had a 20 x 20 Ohio type laying house completed, an achievement of their own initiative and handicraft. Bob, with the help of his pullet laying flock, paid off the \$200.00 loan six months after they were placed in the laying house, and they returned a labor income of a little better than \$230.00 their first production year. This became Bob's major enterprise, was continued throughout his four years in vocational agriculture, and

today it is an important part of the farm program.

Following graduation from high school, Bob entered the College of Agriculture, Ohio State University, and graduated in the spring of 1931 with a major in poultry. Living about 8 miles from the campus, he drove to and from the university daily, cared for his poultry, and it was from this source of income that he largely financed his way through college. These finances were supplemented by a scholarship received through a competitive examination in agriculture, and also by a first place cash award of \$100.00 given in a Farm Account Contest in Ohio and sponsored by the Joint Stock Land Bank of Cleveland. Each of the above awards was received during his senior year in vocational agriculture. Upon graduation from college, Bob continued on the home farm with his parents and continued his interest in poultry. In 1932 he built a second 20 x 30 laying house, expanded the laying flock to about four hundred hens, and has maintained a flock of about this size up to the present time.

In 1934 Bob purchased the home farm of 50 acres under a land contract and in 1941 purchased an adjoining farm of 102 acres. An adjoining 24 acres has been added to this latter purchase.

The first of the twin barns you see in the picture was built in 1940 and replaced an old barn which had earlier been used to stable a couple of work horses, and provide storage for feed and a limited amount of machinery. The second of the twin barns was constructed in 1949 and they are now used to provide dairy quarters for a milking herd of twenty-one Holstein cows including a large loafing shed, and spacious storage for roughage including modern hay drying equipment. Added emphasis toward the development of the dairy enterprise began about 1935, the herd
(Continued on Page 190)

Rugged individualism again

CARL G. HOWARD, Teacher Education, New Mexico



Carl G. Howard

WHEN ONE couples with advancement in college curricula the urge which is placed upon teachers of vocational agriculture to earn graduate credit in ever increasing amounts the problem becomes acute. Superintendents of schools in many western states, particularly, are requiring all of their teachers of secondary school subjects to earn a certain number of graduate credit hours by taking professional or technical courses while actively employed on a full time basis. This tendency places the teacher of vocational agriculture at a serious disadvantage because most states allow only two weeks of summer vacation with an additional two weeks when vacation time also is used for summer school attendance every other year or some such similar arrangement. When most summer schools extend over a normal period of six to twelve weeks it is obvious that full time attendance in any year is out of the question without loss of federal reimbursement for the time over two weeks one year and four weeks the next year actually spent in summer school without any vacation whatever. Local school superintendents have as much sympathy for vocational agriculture teachers as anyone else, but most of them have rules of professional improvement to which all their teachers must subscribe. This has resulted, in many cases, in their sending their teachers of vocational agriculture to summer school without hesitation even though they knew positively that they would lose reimbursement and supervision of supervised farming by doing so. Vocationally, this tends to weaken what is in some cases an already weak program of summer supervision.

Renewal of certificates in many states requires one full summer school every three to five years, regardless of other considerations. Add all of this together and one emerges with quite a problem. Many states have already done something about short courses, extension courses, combining organized and systematic instruction with state conferences and other expedients.

Solutions

Something over fifty teachers of vocational agriculture are employed in New Mexico. About 20 per cent of them actually lost reimbursement last year because they felt that they had to go to summer school for one reason or another. Probably an additional 20 per cent took short courses or did extension work.

In 1950 the teacher-trainer met with a committee of teachers at their annual state conference for teachers of vocational agriculture and noted their needs

and desires. He, in turn, presented to them some of the problems of the college in trying to help them get graduate credit for off-campus work, directed by others than regular college employees.

Without going into the details the following emerged: The faculty of the school of agriculture, the academic senate of the college, and the graduate committee of the college, in turn, approved the allowance of graduate credit for exemplary participation in the state conference for teachers of vocational agriculture, with certain limitations. These may be seen easily by looking at the material appearing in the catalog of the New Mexico College of Agriculture and Mechanic Arts:

Agricultural Education**220a. Advanced Practices in Agricultural Education. Summer only. Cr. 2.**

"Workshop procedures applied to significant selected topics at the annual state conference for teachers of vocational agriculture under the immediate supervision of the agricultural teacher trainer and with the assistance of the state supervisory staff in agricultural education over some thirty clock hours allows graduate or certification credit for those vocational agriculture teachers who are qualified to be such in on or off-campus meetings of five days duration. Full credit may be secured if previous assignments by the agricultural teacher trainer are carried out satisfactorily, and registration fees paid. Graduate credit to apply toward any graduate degree will be limited to six semester hours and no workshop project shall be repeated for credit."

Some thirty-three teachers of vocational agriculture indicated their desire for the "previous assignment" shown above. Due to changing conditions only

twenty-three actually completed their advance assignments, and participated in the state conference and received graduate credit for it.

Evaluation

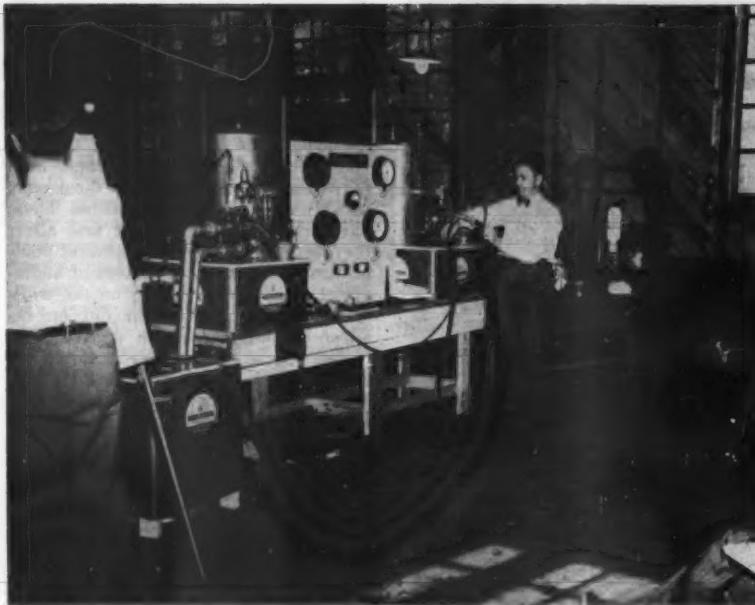
Some "bugs" did appear in the first run-off of the program, as would be a normal expectation. Most of them were entirely administrative in nature. These have been corrected. In the first effort the men were assigned to several committees within the general area of audio-visual aids. As a check-up on the work each registrant for credit did on his advanced assignment each was required to demonstrate to the other members of his committee what he had done and how he proposed it should be used with vocational agriculture students. Each of the other members of his committee then rated him on his demonstration and turned the ratings in to the teacher-trainer for summarization and tabulation. The evaluation sheet is shown below.

Averages were run on each man and a tentative grade assigned. This grade was substantiated, later, by the teacher-trainer's observation of each registrant's active participation in the work of his committee and in its final report.

There was some objection raised to the use of work-shop time for demonstrations of preparation before the individual committees. Consequently for the 1952 run of Ag Ed 220a a rating committee will go over all material submitted as proof of completion of advance assignments with the teacher-trainer and using very much the same rating form as shown. Supervised Farming is the general area for the 1952 state conference. Assignments will be made early and the teacher-trainer will become a "time-keeper" only, to see to it that the "30 clock hours" of time spent in the conference are used entirely for "Work-shop" procedures in the "supervised farming" area. This time rating, added to the committee's evaluation of advanced work will again determine the grade.

<i>Preparation of Assigned Material</i> (Perfect score 50)	<i>Perfect Evidence of completeness and thoroughness in preparation</i>	<i>Name</i>	<i>Name</i>	<i>Etc.</i>
Amount and kind of material brought to conference	10			
Detail and form of material brought	10			
Evidence of individual work and time spent in preparation	10			
<i>Subject Matter</i> (Perfect score 20)				
Practicability and importance in vo-ag program	10			
Accuracy and clearness of subject matter	10			
<i>Presentation of Material</i> (Perfect score 20)				
Effectiveness and clarity of presentation	10			
Efficient use of good teaching procedures	10			
<i>RESULTS OBTAINED</i> (Perfect score 10)				
Effect on the group and practical use which can be made of material presented	10			
TOTAL SCORE MADE ON THE BASIS OF A PERFECT RATING OF 100.				
Subtract 5 to 15 from total score made for poor time usage if too much, too little, or improper use				
ADJUSTED SCORE (Percentile basis)				
Recommended Grade for Ag Ed 220a (A, B, C, P, F)				

Signed _____ Instructor Vocational Agriculture at _____



Two of the instructors, Lewis Evans of Noland Co., Roanoke, Virginia and E. Bruce Paddock, Goulds Pumps, Lynchburg, Virginia, are using the teaching equipment to demonstrate the effect of pipe size on amount of water pumped. The same equipment was used to illustrate common pump troubles encountered, means of correcting and procedures to use in avoiding trouble.

Quick returns from in-service training

T. J. HORNE, Teacher Education, Virginia Polytechnic Institute



T. J. Horne

DURING the past few years electric power producers have made tremendous strides in extending electric service to farms in Virginia. Few farms are without electric service. The trend has been for farmers to connect electric service for lights and after becoming accustomed to its uses and educating themselves to its possibilities to add additional service units to the lightline until they not only reach but surpass its rated capacity. The availability of electric service has resulted in a rapid expansion in application of electricity in the performance of farm jobs.

The Situation

Today, during this period of labor shortage, electrical power is taking over much of the work of the farm hired hand. The farmer finds himself in the position of being asked to produce more with a continuously decreasing supply of labor. Mechanization and electrical power must provide the labor differential which will enable him to achieve this goal and at the same time provide him with an opportunity to enjoy the fruits of his labor. The trend is in that direction. We have farms in Virginia

today that are so dependent upon electricity that they can't water the livestock during a power outage. It does much of the work, the farmer makes the decisions.

The farm homes are today becoming as adequately equipped and as modern as the urban homes. They can now have both the urban conveniences and the advantages of country life. This has tended to make the farm more attractive for rural youth in Virginia, and to provide more time for the farm family to enjoy life and participate in recreational activities. These are the conditions in rural Virginia and the people with whom the vocational agriculture teacher works.

Many of the teachers were given their basic training before electricity assumed such an important role in the farming program in Virginia. Others in more recent classes have had an opportunity to take one or more courses in Farm Electrification. In such an offering it becomes rather apparent that practical application must be limited.

The background of a vocational agriculture teacher's preparation is a general background of technical agriculture with his only claim to specialization being in teaching. He must continuously learn in service if he is to keep abreast of current farm developments, the area of rural electrification being no exception.

The vocational agriculture teacher has won a place of respect in the rural community and is looked to by the farm people as a source of timely information. If he is to continue to hold the respect and serve the needs of farm people then the fount of accurate information must be ever flowing.

Farm people as a group have a limited knowledge and understanding of electricity and its uses. This lack of knowledge and the many requests for assistance coming to the vocational agriculture teacher coupled with the realization that electricity has a multitude of potential uses on the farm makes us acutely aware of the need for practical assistance in this field.

The Need

It is in such a background very sketchily presented that the vocational agriculture teacher is serving in a community in rural Virginia. One needs only to walk with him onto the farmstead of one of his farmers to behold the conglomeration of extensions, attachments, inefficient, and unsafe use of electricity to become convinced of the need. Specifically a limited survey of vocational agriculture teachers and farmers indicated that we needed in-service training:

1. To develop an understanding of electricity and its use to assist teachers in training farm people.
2. To assist farm people in planning a farmstead wiring system adequate to serve their present and foreseeable future needs.
3. To advise farmers in selection and procurement of electrical supplies and equipment.
4. To advise farmers in the installation of electrical facilities and equipment.
5. To assist farmers in caring for and safe use of electric installations and facilities.
6. To assist farmers in care, operation, and maintenance of electrical equipment.
7. To assist farmers in planning and developing a farm and home lighting system.
8. To assist farmers in making repairs.
9. To secure enough practical experience for the teacher to gain the necessary skill to assist the farm people of his community in solving their rural electrification problems.

These needs for in-service training are based upon the common needs of farmers as best we have been able to determine them. Some of the farmer's needs grow out of his inability to secure technical assistance needed in performing the skills required to plan, install, operate and maintain a farm electrification system. As a result, the farmers have to do the job themselves with whatever assistance they can secure. So far, the vocational agriculture teachers have been the primary source for the practical help the farmers have been seeking. This realization led to the establishment of a joint in-service training program with the electric power company for vocational agriculture teachers in their service area in Virginia.

Application

At a joint meeting of the Supervisory Staff of Vocational Agriculture, Teacher Training Staff and electric power company officials a three-point educational program was adopted for 1951. Further meetings were held to plan a series of two-day working conferences on each of the three following problems:

1. Planning the Farmstead Wiring System.
2. Planning the Farmstead Water System.
3. Planning the Farmstead Lighting System.

Each of these series of conferences were planned and conducted in about this same manner. The best instructors available were secured to do the teaching. Visual materials, specimens and samples were used throughout the instruction; then application was made, under supervision, in an actual situation to develop teacher skills. Each teacher was provided with sets of plans and materials needed to teach his classes both all-day and adult.

The success is indicated by a brief survey of 77 departments of vocational agriculture completed in November, 1951, which indicated that these teachers have been able as a result of this instruction to secure the following results with farmers in their communities.

PLANNING THE FARMSTEAD WIRING SYSTEM

709 hours of instruction have been given to adults on Planning Farmstead Wiring
2045 individual adults received this instruction
425 hours of instruction have been given high school students on this subject
1659 high school students received this instruction
170 farm homes have been wired for electricity
45 dairy barns have been wired for electricity
29 milk houses have been wired for electricity
52 farm shops have been wired for electricity
113 farm water pumps have been wired for electricity
96 laying houses have been wired for electricity



Carrying the instruction through the doing phase here are the teachers at work installing the wiring system in a barn after it has been completely planned and approved for installation. Service entrance and six circuits were installed.

- 140 brooder (poultry) houses have been wired for electricity
- 23 hog houses have been wired for electricity
- 42 other buildings have been wired for electricity
- 2000 convenience outlets have been installed
- 1038 switches have been installed
- 78 other improvements have been made in electric wiring
- 21 sets of studding panels have been constructed for teaching wiring

PLANNING THE FARMSTEAD WATER SYSTEM

- Seven Months Accomplishments*
- 547 hours of instruction have been given adults
- 1803 individuals received this instruction
- 273 hours of instruction have been given high school students
- 1324 individual high school students received this instruction
- 182 water systems have been installed
- 112 water systems have been extended
- 82 other improvements have been made to farm water systems

PLANNING THE FARMSTEAD LIGHTING SYSTEM

Two Months Accomplishments

- 163 hours of instruction have been given to adults
- 1146 individual adults received this instruction
- 75 hours of instruction have been given high school students
- 498 individual high school students received this instruction
- 323 lights have been converted
- 175 light recipes have been applied
- 67 study centers have been established

Another intangible result, but very valuable one, was that the vocational agriculture teachers and electric power company representatives learned to know each other and work together to assist the farmer in solving his problems. Several teachers indicated that at the time of the survey they were just starting the program in their community so actually this is merely the beginning. The long time results can exert a tremendous influence on rural electrification progress.

Today's research shapes tomorrow's farming

(Continued from Page 173)

in meeting this challenge. We are finding that improved grasslands can produce as many feed units per acre as corn or other feed grains, and do it at lower cost and with fewer hours of labor.

In North Carolina, on land capable of producing 50 bushels of corn an acre, an improved pasture produced the equivalent in feed units of 87 bushels of corn. The cost for 100 pounds of digestible nutrients was 58 cents for the improved pasture and \$1.77 for corn. The calculated returns per man hours of

labor were \$23.09 from improved pasture and \$3.69 from corn.

The grasslands program is improving our prospects for increasing meat production. So is the National Beef Cattle Breeding Program that was organized in 1948 with 37 cooperating experiment stations. The standards now being developed to measure efficient growth accurately will make it possible to sort out the best available breeding stock of Herefords, Aberdeen-Angus, Shorthorn, and Brahman, or crosses derived from these breeds. Records of performance measure the efficiency of gain from birth to weaning and from weaning to market weight. Rapid-gaining strains are being selected. Tested livestock

already is being released to cooperative breeders. Your students will in time be using these selected lines to increase their beef production.

Combining several operations into one, such as applying weed killers and fertilizers together, often involves the development of improved or new machinery. There is no doubt that mechanization will increase. A new peanut harvester that threshes as it digs is expected to save 50 man-hours of work per acre. A new low-cost sweetpotato digger turns up enough more sweetpotatoes with less work to save the average grower \$20 an acre at current prices. These two new ma-

(Continued on Page 189)

Insurance for electric power

EDWARD O. EATON, Graduate Student, Cornell University

THE use of electricity on the farm today has become so common that the farmer has become very dependent upon it. Being available to practically everyone and so generally accepted, electricity has become increasingly important. The claims, that by using electricity the costs of production are reduced, that the quality of farm products is improved, and that much of the drudgery of farm tasks is removed, seem justified.

Many new uses of electricity for light, heat and power are being tried out every day on the modern farmstead. This is true not only in the barn, but also in the house to the extent that it has become a vital factor in farm life. This likewise is a true picture whether on the dairy, poultry or general farm.

The list of appliances and equipment using electricity is a long one. Some commonly accepted uses are: milking machines, water pumps, milk coolers, gutter cleaners, water pipe heating cables, fans for ventilation and many others. Other newer uses in which considerable interest is being shown are: infra-red brooding of baby chicks, corn borer moth attraction through the use of ultra violet light, new designs in egg washers, pipe line handling of milk, mechanical cleaning of dropping pits in laying houses, forage elevators, bactericidal lamps for increasing egg production, calf dehorning and the use of heaters in the milk house or egg grading room to supply comfort.

Recent research dealing with two of the above uses point out advantages. The mechanical cleaning of dropping pits in the laying house was found to remove moisture which otherwise would have been left to the ventilating system. The advantage seemed to be in favor of the mechanical removal of the moisture by cleaning the pits. The forage elevator operated by a three horsepower motor was found to do double the work of the conventional blower operated by tractor developing 25 to 30 horsepower. The elevator on three H.P. was placing in the silo 22-24 tons an hour as compared to 10-12 tons by the blower operated by 25 to 30 horsepower.

By compiling a list of the uses of electrical energy for *light, heat, and power* on the farm and in the home little doubt is left in one's mind of how dependent the farmer and his wife have become on things powered by electricity.

Power companies are providing better service for the consumer every year. As consumer demands have increased, and they have done so at a rapid rate, power companies have been required to expand to meet the new needs. Through the construction of new plants and the purchase of new and more efficient equipment they have been able to provide better and more dependable service. Power failures, though uncommon today, are unpredictable and unavoidable. Due to storms over which one has no control, power failures do occur, and the entire schedule of modern farm operations is upset.

In considering how dependent the farmer has become on electricity and the

possibilities of power failure it seems wise to think of insurance against power failure. Financial loss, inconvenience and discomfort may be avoided through adequate protection.

Insurance against power failures by the use of emergency stand-by generators can now be provided. Small electric generators driven by an engine or from a tractor belt pulley are now on the market.

By using a small electric generator, power can function the same as usual with the size of generator, however, being a limiting factor. The power provided is usually 115/230 volts, single phase, 60 cycle alternating current. Several manufacturers make these generators in 3,000, 5,000, and 10,000 watt sizes with an approximate range in price from \$400.00 to \$1,000.00, depending on the size, for the tractor driven unit.

Purchasing a generator large enough to handle all equipment does not seem advisable, but by staggering the operations certain necessary jobs can be carried out during a period of high line power interruption. The generator selected should meet the following requirements:

1. Have a thermal overload device to protect it against burn out.
2. Have a belt pulley of proper size to operate with the tractor at governed speed.
3. Have rating in kilowatts that is large enough to handle the equipment needed for critical operations.

With the proper installation and its wise use in times of power failures, one should be able to cut down financial losses and be able to carry on farming operations in a normal manner. ●

Protecting bulletins and circulars

ELWOOD M. JUERGENSON
Teacher Education, University of California

COVERING bulletins or circulars in order to protect them, often presents a problem to teachers. Materials that are used to cover them are often bulky or obscure the writing so that the title must be rewritten on the outside. This seldom can be done as well as effectively as the original bulletin.

Here is an easy, effective way to cover them and preserve the original appearance of the pamphlet. The idea revolves

Diary, dear diary

DON HADLEY, Teacher, Ohio City, Ohio

I was glancing through some old project books when I came upon the following records kept by a freshman boy.

November

Nothing special happened except our club elected officers. I didn't make it.

December

Lily went dry.

January

Nothing special happened.

February

Same as January.

March

Lily had a heifer and I named it Designer Aim Rosette.

April

Blossom, my two-year-old cow went dry.

May

Everything went O.K.

June

Blossom had a calf, and I haven't decided what to name it. I exhibited at a spring Jersey show and didn't do too well.

July

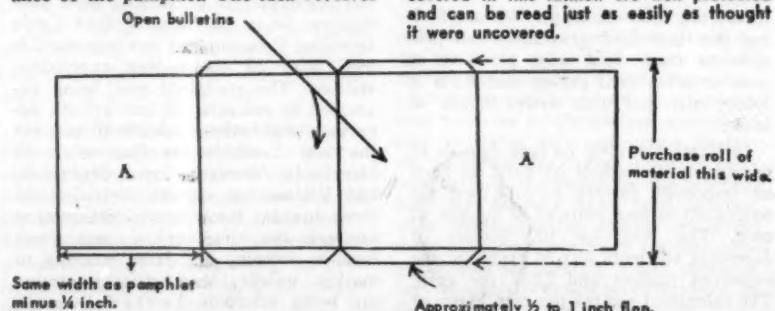
Nothing special happened, except our house burned down.

Analyze your day's work, weigh and classify each job as to requirement of time, thought, and energy and importance in putting your job over successfully. In a few days check to see if your situation isn't brightening and you are able to accomplish more each day.

around the use of clear, waterproof cellophane used in wrapping meat and other produce. This material seals by folding two edges together and seals by rubbing over once with a hot iron. It comes in a variety of widths and is relatively inexpensive.

In order to cover a publication, simply cut off a piece of cellophane and cut to fit the bulletin as indicated in the diagram below.

In order to fit to the pamphlet, simply fold in two outside edges (A, A) then fold over flaps and press over with a hot iron. Bulletins covered in this fashion are well protected and can be read just as easily as thought it were uncovered.



Today's research shapes tomorrow's farming

(Continued from Page 187)

chines are in limited production. Engineers are developing harvesting and handling equipment that will dig, pick up, load, unload, and deliver potatoes to the storage bins without touching them with human hands. An experimental separator attached to the digger has been designed to remove clods, stones, and dirt from the potatoes. We are also developing and testing the economic and labor-saving advantages of bulk handling from the citrus grove through the coloring rooms in the packing house. Preliminary results indicate advantages to be gained by the elimination of field boxes. Still experimental but definitely on the way to the farmer is a brush-type stripper which will remove cotton from the bolls without taking bits of the stem along too.

Artificial curing of forage crops and grains on the farm is spreading. There were 63 forage driers in use in 1944. There are 10,000 now. Mechanical drying may become a routine operation on many farms because it cuts down losses from weather and insects and assures a higher quality feed.

More use of chemicals in agriculture is on the way. Progress in chemical weed control has been spectacular. Even 6 years ago herbicides were very little used. Last year farmers applied them to more than 30 million acres. This goes back directly to the basic discovery 10 years ago that certain chemicals could be used to control the growth of plants. Pre-emergence herbicides to control weeds in cotton fields should go a long way in reducing the 100 man-hours of labor per acre now required for this crop.

Close teamwork of the chemical industry and plant pathologists is giving us a variety of complex organic materials to control fungus diseases of plants. We are learning to control nematodes, insects, and other soil pests with soil fumigants. New chemicals will preserve and improve crop quality. Chemical thinning of apples is now a commercial practice in the Pacific Northwest.

I mentioned chemicals for control of insects. There are other possibilities. The European corn borer, as you know, is one of our worst pests. The last couple of years have seen a big drop in the damage done by this insect. Probably weather and other things have been responsible for most of the decrease, but entomologists call attention to the place that parasitic insects may take in helping to give natural control of the borer. Some of the parasites introduced several years ago have become well established. Among these is the Lydella fly, which actively preys upon the larvae of the borer.

The new industrial crops now being developed will make other changes. These crops, of course, are specialties and only a few farmers probably will produce them, but they illustrate the potentials for some of your students. The southwest is the most likely producers of guayule, a source of natural

rubber; canagre, a possible substitute for the chestnut tree as a source of tannin, and castor beans for industrial oils. Safflower, another oil crop, already is showing promise in the Pacific Northwest and the Great Plains.

But new crops are only part of the story. Improvements will continue in crop varieties and animal lines. Work on the varieties and lines your students will use 10 years from now is going on today, and it may have started many years ago. Nor can we foretell the full effect of a new introduction. For example, when breeders began work on the Beltsville white turkey in 1934, I doubt if any would have predicted today's turkey broiler industry, which has introduced the light roaster in many homes. Who can tell what effect this one development will have on poultry marketing of the future?

The marketing system itself offers a fertile field for improvement through research. Marketing has become far more complex in recent years. The way farm products are harvested, processed, and packed by growers has a direct bearing on sale, on amount of waste and loss, and on returns to the farmers. Producers need the help of research to find solutions to the problems these conditions create.

Better designs for grain storage on the farm are being worked out and economical methods for controlling moisture movement in stored grain are being developed. A new low-cost mechanical method for dumping field crates of apples, which reduces bruising 60 to 70 per cent, is an example of ways we can find to reduce the terrific losses that come from rough handling or bad packaging of farm products.

We must continue to improve market information and revise grades and standards. Many of the old standards were developed as need arose and were based on market practices and conditions at that time. Great variations exist. Research is finding ways to show the ranges and limits for each grade more clearly. Colored charts are being used successfully to show these differences in beef, veal, and lamb. Research is providing additional information based on physical analysis and carcass measurements which will make the grading more precise. Proposed hog standards will give a proper place in U. S. Choice No. 1 to the new meat-type hogs. Improved standards will enable the market to reflect quality premiums back to the producers. Both producers and buyers will benefit.

A large share of the consumer's dollar goes for costs in distributing the goods that have been produced. There should be many opportunities to reduce these costs just as we reduce production costs on the farm. Fortunately with the passage of the Research and Marketing Act, we are getting into this field of effort on a considerably expanded scale. We haven't turned the marketing system upside down yet, and we hadn't expected to in this short time, but we are gathering a base of facts on which we can proceed. Here's an example: Market facilities in 30 concentration, secondary, and terminal markets have been analyzed

Chart making techniques and materials

Teacher-made charts are especially valuable for Adult and Young Farmer classes. These suggestions have proven helpful to teachers in making their own charts and graphs.

White or brown wrapping paper cut to 24" x 30", 30" x 36", or 36" x 42" dimensions makes very satisfactory chart material. This is especially desirable when a series of charts are to be used in one unit. When single charts are to be made, stiff cardboard poster paper has obvious advantages.

Lettering and drawing on these charts can best be done with a free flowing pen using felt nibs and quick drying ink. Before using ink, the chart should be lined lightly with a hard lead pencil to provide a guide for lettering. The title letters should be 2 to 2½ inches in height in order to be easily read from any location in the classroom. Capitalize the letters of title words. Use lower case letters in subordinate parts of the chart.

Window shades on their rollers make very useful charts which can be partially prepared before class and filled in during class discussion. First, shellac the window shade using one part white shellac and one part denatured alcohol. Then paint the shellacked surface with at least three coats of blackboard paint. Ordinary chalk can be used for writing on this type of chart. It can be easily cleaned or erased with a damp cloth.

—R. J. Woodin, Ohio State Univ.

Understanding is the first great need in all human relations.—Ibsen

to determine the defects in handling methods and facilities and to measure the added cost because of each defect. Recommendations have been made and new or improved markets are going up in many of our cities.

Experience teaches us that most problems can be solved. If the housewife wants potatoes with shallow eyes, or early apples that are red, we produce them for her. If she wants less lard and more bacon we change the shape of hogs on millions of farms. If she wants vegetables with more vitamins, plant breeders in every state will see that she gets them.

In research the problem is not "Can it be done?" but, "What do we want, and how soon do we want it?" These questions are not for the scientists to decide. Farmers and consumers will make the decisions. Your students should be thinking about what kind of agriculture they want, and how research can contribute to that end.

In your teaching I hope you will be able to tell the research story in a way that will fire the imagination of your students and start some of them on a life-long quest for truth that will make scientists of them. There is no better place than the rural high school to teach the real meaning of research and to recruit those who will carry it on in the next generation.

BOOK REVIEWS



A. P. Davidson

A NIMAL NUTRITION by Leonard A. Maynard, third edition, pp. 474, illustrated, published by McGraw-Hill Book Company, list price \$6.50. This text brings the principles of nutrition and their application to feeding practices up to date.

The revision reflects especially the large advances with respect to amino acids, vitamins, and micromineral elements. This publication is of college level, but should prove of value to teachers of vocational agriculture as an up-to-date reference source.

—APD

* * *

BEEF CATTLE HUSBANDRY, by M. E. Ensminger, pp. 381, profusely illustrated, published by Interstate Printers and Publishers, list price \$3.50. An interestingly written text which is easily understood on the high school level. The book has a practical slant based upon sound technical knowledge. The selection and quality of the illustrative materials used adds greatly to the value of this text. The appendix carries important information on eleven subjects including Animal Units, Weights and Measures of Common Feeds, Estimating Steer Weights, Measurements, Gestation Table, Registration, Artificial Insemination, Top Sales, Breed Associations and Publications, and Agricultural Experiment Stations. Beef Cattle Husbandry will prove interesting and helpful to the cattlemen and to teachers and students in the field of agricultural education.

—APD

* * *

ELEMENTS OF PLANT PROTECTION, by L. L. Pyenson, pp. 538, offset printing, illustrated, published by John Wiley & Sons, Inc., list price \$4.96. An attempt has been made to bring together information on all plant pests including insects, disease producing organisms, rodents, birds and weeds. The nature and control practices are presented in a clear, concise and understandable fashion. The illustrations include both half-tones and line cuts. The inclusion of questions for study at the end of each chapter will prove helpful to both the teacher and student. This comprehensive, easily understood text should prove interesting and useful to growers as well as to students and teachers in the field of agricultural education.

* * *

PRINCIPLES OF WEED CONTROL, by Gilbert H. Ahlgren, Glenn C. Klingman, and Dale E. Wolf, pp. 368, illustrated, list price \$5.50, published by John Wiley & Sons, Inc. This text presents the underlying principles and the control techniques of this rapidly growing science. Vital facts and fundamentals

Does it pay?

(Continued from Page 184)

is under D.H.I.A. testing, and this past year their butterfat production fell just a little short of 400 pounds per cow.

The farm house is modernized throughout and the farm is fully equipped with tractor power and modern machinery including hay baler, feed chopper and silo filling equipment.

Bob was married in 1938 and he and Mrs. King are the proud parents of two sons: Glenn, 11, and Dale, 7 years of age. Over the years they have been active in the Grange, Farm Bureau and Church. Bob has been a member of the Norwich Township Board of Education for the past five years and is now serving as its President. Bob gives major credit for his success to his parents and the help and encouragement received from the department of vocational agriculture of which he was a member. The writer would like to give credit to Bob's initiative, pluck and hard work and the help and encouragement of his good wife.

Teachers of vocational agriculture may wonder sometimes whether they are repaid for their efforts. Others who give moral and financial support to a program of vocational education in agriculture may ask the question—"Does It Pay?" I believe this question is answered in the story of Robert King. Bob is above average, I believe, but surely he is not an exception. •

Public relations committee promotes active program

The public relations committee of your vocational agriculture teacher association has continued with the program which was presented at the annual teachers conference.

During September, 15,000 service club secretaries, Grange lecturers and county Farm Bureau managers were sent a list of Ohio teachers representing each district who agreed to serve as speakers before such groups.

associated with weeds, their life and habits, and how to control scientifically all types of weeds constitute the major emphasis of this publication. The authors discuss thoroughly the principal control chemicals, and provide a chemical background to help understand and interpret the data presented. The effects of herbicides on the life and functions of plants are effectively treated, and included is valuable information on poisonous weeds and their control, soil sterilants, chemical and mechanical methods of defoliation, and the various ground sprayers, airplane sprayers, hand sprayers, and flame throwers. The book is written primarily for classroom instruction, but it will prove useful to research specialists, industrial chemists interested in herbicides, farmers, farm leaders, agricultural extension workers, and vocational agricultural teachers. The appendix dealing with the susceptibility of plant species to 2,4-D and conversion factors should prove most helpful to persons interested in weed control.

—APD

Farming programs which lead to establishment

(Continued from Page 183)

ing this period that a boy is confronted with a series of distracting influences that are apt to make him lose sight of the importance of his farming program. In general, it seems that if a boy maintains his interest and conducts an expanding program throughout high school, one of the most severe obstacles has been surmounted. On the other hand, a student may be hampered during his day-school classes by the lack of facilities and opportunities; still when he is out of high school and can devote full time to a farming program, he may progress rapidly.

Every step possible should be taken to maintain contact with prospective farmers after graduation. It is a bitter pill indeed to see an outstanding program dropped due to loss of interest or to a minor set-back, but this may happen to young farmers who are entirely on their own. In larger communities contact may be maintained through organized groups of part-time or evening schools. In smaller communities where young farmers are fewer it may depend entirely on the initiative of the individual instructor to maintain contact.

Our goal, as vocational agriculture instructors, is to train our students to become established in the occupation of farming. We can't do it alone, and to attain this goal it would seem that the following conditions should be met:

1. A sincere, ambitious, and interested student
2. parental cooperation and willingness to assist in developing a farming program
3. an expanding farming program following improved practices
4. an absence of distracting influences such as hot-rods and city-bred girl friends who disdain farm life
5. a maintenance of interest and supervision between graduation and actual establishment.

In some cases it all goes automatically. In others it appears impossible. Regardless of how it is accomplished there is an exaltation in having aided a young man to establishment. His future success is then assured. •

The organized mind

An organized mind has a whale of a lot to do with determining whether a man is successful. It is a mind that functions in an orderly manner, attaching just the right importance to everything that comes up for attention in the day's work. One problem is worth just so much concentration and drive—another is worth another amount. Are we putting our energy and concentration into small, insignificant problems and when the big and important problems come along, we are spent? "The most important job is the one directly in front of us." Get it accomplished by spending no more time, concentration, and effort than the particular problem deserves.



One of the groups of the Hamilton section on tour through the Jennison Station. Picture shows the group being shown the turbine end of one of the generators.

Rural Electrification

Off-Campus Course Given by Cornell University

E. W. FOSS, Professor of Agricultural Engineering, Cornell University

DURING July and August of 1951, thirty-six New York State Teachers of agriculture completed a course in Rural Electrification sponsored by the Agricultural Engineering Department at Cornell University, New York State Electric and Gas Corporation, Niagara-Mohawk Power Company, and Rochester Gas and Electric Company. This course was given in the vocational agriculture classrooms at the Central Schools of Phelps and Hamilton, New York.

The course was patterned after the "Farm Electrification In-Service Training Program for Agricultural Workers" published by the Edison Electric Institute. Lectures and demonstrations were included on motors and motor protection devices, wiring materials and method, lighting the farm, refrigeration, milking machines, hay drying, and hoists. Cooperating in these lectures were personnel from G.L.F., International Harvester Company, General Electric Company and the three utility companies previously mentioned. Tours were taken to power generating stations, electric distribution points, and to farms with up-to-date electrical layouts and electric equipment.

A considerable portion of time was given over to the construction of an electric panel board for use in giving demonstrations to vocational agriculture classes, both to the all day and out-of-school programs. The panel board followed closely that designed by Sprague and Stere with demonstrations as listed in the manual published by the Agricultural Engineering Department at Pennsylvania State College.

Our cover

THE young farmer class at Marshall, Missouri sponsored a corn yield contest last year. The group shown on the cover are shown weighing corn of one of the entrants in their contest. The teacher of agriculture, Morton C. Craig, is on the extreme right. The rules and regulations of the contest follow:

Checking Yields

1. The contest committee will appoint sub-committees of three or four entrants in localized area to check their yield plots using scale set-up by contest committee.
2. Checks will be made in the five-acre field and distributed as evenly as possible over the five acres.
3. Entrants must use steelyard or platform scales to weigh corn and a standard steel tape for measuring.
4. Entrants must measure 10 average middles to determine width of rows.
5. Three 1/1000 of an acre checks will be made on two rows using 62.2 ft. for 42 in. rows, 65.4 ft. for 40, 68.8 ft. for 38, and 72.6 ft. for 36 in. rows.
6. Twenty-five pounds of ear corn shelled for shelling percentage and moisture test taken same day at the most convenient tester.
7. Any ear missing may be replaced with average ear on other row. Dead-furrows, contour ends, water way and so-forth may be side stepped to uniform corn.
8. All entrants must make reports on practices used to obtain yields. Forms will be supplied.
9. An entrant will be disqualified if any commercial organization furnishes any part of the fertilizer or cost of application of fertilizer.

Let's judge soil

GUY A. STOCKDALE, Teacher
Panora, Iowa

WE HAVE LONG had contests for judging livestock and for judging grain. Why not have a contest to judge the land which produces the grain and which feeds the livestock? That question occurred to Mark B. Huntley, soil conservationist for Guthrie County, Iowa. He decided to do something about it.

The four vocational agriculture instructors in the county, Arch Silletto of Guthrie Center, J. R. Carpenter of Stuart, Calvin Cox of Bayard, and Guy A. Stockdale of Panora, John Bishop the County Extension Director, along with the soil conservation district men were called in to plan a contest in soil judging for junior and senior students in vocational agriculture.

A score card was prepared. On one side of the sheet a field was rated under six headings: (1) color of surface, (2) depth of surface, (3) permeability of air and water in subsoil, (4) texture of surface soil, (5) slope and (6) degree of erosion. Points were assigned to each of these headings so as to total 100. On the other side of the score sheet there were four headings with allocated points also totalling 100. First was Land Capability classification according to the Soil Conservation Service system of classification. Accuracy in determining the correct class would depend upon correctly judging the physical features listed above. Then there were, Land Use, Suggested Cropping System and Other Suggested Conservation Practices.



The contest was held April 16 and 17, 1951. Each school judged alone which simplified the supervisory problem by having a smaller group at one time. Two fields were judged. Two schools judged the same fields. For the other schools fields nearer to them were chosen. Before the contest a post hole auger was used to lay out on the ground a representative profile of the soil for the boys to observe.

Guthrie County has two distinct and contrasting soil areas, one is a glacial area with Clarion and Webster series predominating. The other is a loess area, part of it extremely hilly with Shelby and other series prevailing. How best to manage a farm in some of these places is a real problem. The contest created a great deal of interest in matters of soil and land management and conservation. Some minor changes in the contest is held this year are indicated.

No man was ever discontented with the world who did his whole duty in it.

Linn Publishing Co.

Pictures of the month . . .

**A contest open to all teachers of
Vocational Agriculture and
farm veterans**

**"Fair Time"**

Photo by: J. B. Mowbray, Teacher, Waynesville, Ohio



FIRST PLACE

"Future Farmers"

Photo by: W. A. Rawson, Teacher, Concordia, Kansas

Type B, Pancromatic 1/100, F16

Speed Graphic 4 x 5

"American Farmer"

Photo by: M. D. Myers, Jr., Teacher, Brookneal, Virginia

**"Milk Testing"**

Photo by: J. H. Klipstein, Teacher, Wausau, Wisconsin



